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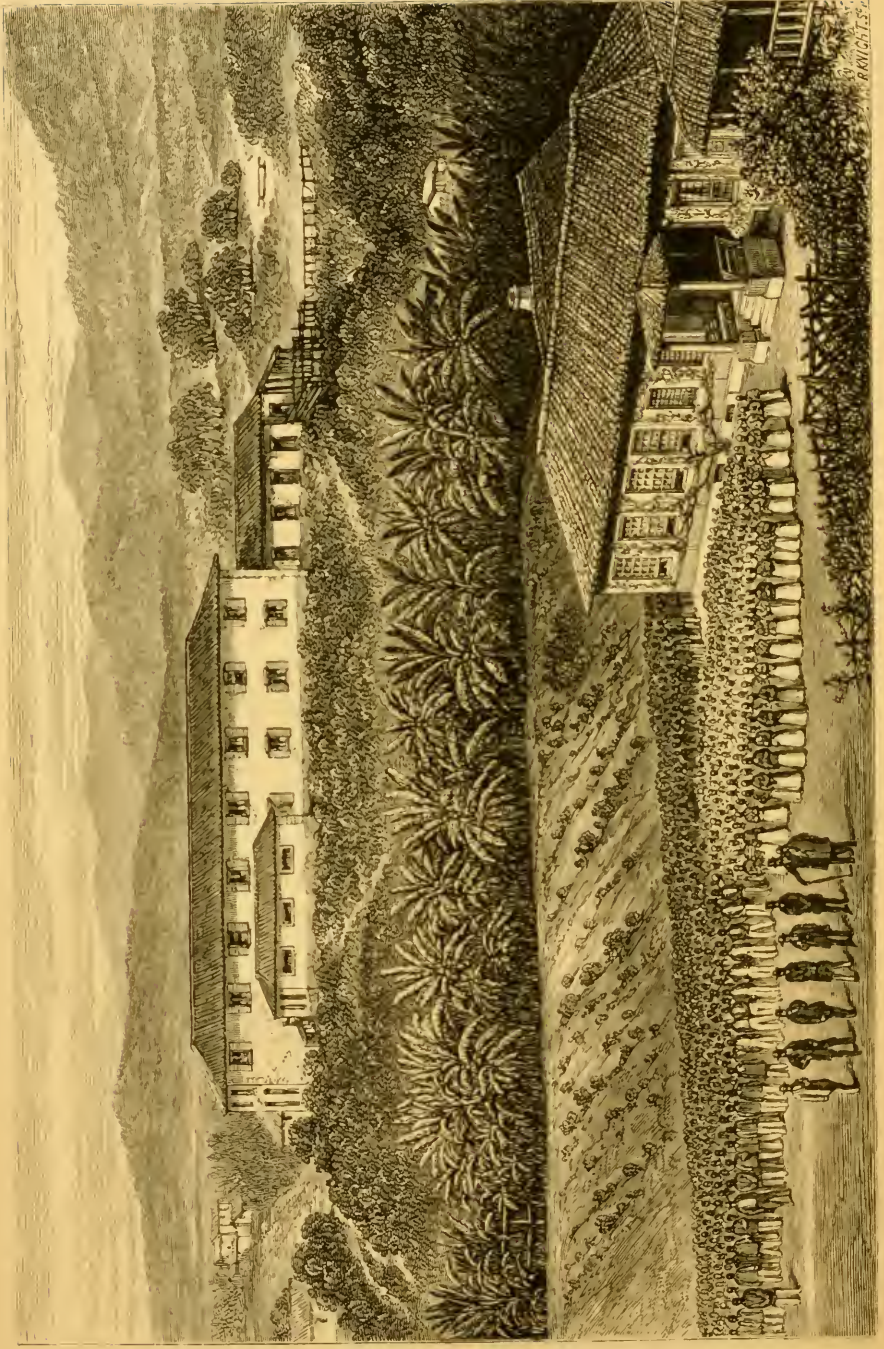
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THE
HIGHLANDS OF THE BRAZIL.







THE FORTNIGHTLY SLAVE-MUSTER AT THE CASA GRANDE, MORRO VELHO.

REPRODUCED BY THE
BRITISH MUSEUM

THE
HIGHLANDS OF THE BRAZIL.

BY CAPTAIN RICHARD F. BURTON,
F. R. G. S., ETC.



The aboriginal Indian (Tupy) of Brazil.

VOL. I.

LONDON:
TINSLEY BROTHERS, 18, CATHERINE STREET, STRAND.
1869.

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EXPLORATIONS

OF THE

HIGHLANDS OF THE BRAZIL;

WITH

A FULL ACCOUNT OF THE GOLD AND
DIAMOND MINES.

ALSO,

CANOEING DOWN 1500 MILES OF THE GREAT RIVER SÃO FRANCISCO,
FROM SABARÁ TO THE SEA.

BY

CAPTAIN RICHARD F. BURTON,

F.R.G.S., ETC.

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1869.

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LONDON
BRADBURY, EVANS, AND CO., PRINTERS, WHITEFRIARS.

(25)

1855

TO THE

RIGHT HON. THE LORD STANLEY, P.C., M.P.

&c. &c. &c.

MY LORD,

I HAVE not solicited the honour of prefixing your name to these pages. A "Dedication by Permission" might be looked upon as an attempt to take sanctuary after committing the crime of publishing harsh truths, and of advocating opinions which are not those of an influential majority. But I am irresistibly tempted to address a fellow-anthropologist, whose enlarged and enlightened world-knowledge, collected, not only in the Closet, but by the close inspection of travel, and by the study of mankind, promises to our native land the broad measures and the solidly based policy which during the last third of a century have shared the fate of other good intentions. The glorious year 1867, the commencement of a new era in the British Empire, may take as its device—

"Anglia surge,
Immo resurge, tuam refero tibi mortuæ vitam."

Your Lordship's name is well known in the Brazil; its fair report is that of a Statesman pledged to progress, who acts upon the belief that the welfare of his own country is advanced by the advancement of all other nations. If this my latest journey have the happy effect of drawing your attention to the Brazil, a region so rich in Nature's gifts, so abounding in still latent capabilities, and so ardent for development; to an Empire bound to us by the ties of commerce, and by its high and honourable bearing in matters of public credit; to a people which excites our admiration by its young and glorious history as a Colony, and by a perseverance, a patriotism, and a self-

reliance in the last three years' war, of which the proudest of European races might be proud; and to a community endeared to us by its monarchical and constitutional government, and by the friendly relations which date from its Independence Day, I shall not deem (to use the stereotyped phrase) that my time and labour have been expended in vain.

I have the honour to be,

My Lord,

Your most obedient humble servant,

RICHARD F. BURTON,
Ex-President Anthropol. Soc. London.

SANTOS, SÃO PAULO,
July 23, 1868.

PREFACE.

BEFORE the reader dives into the interior of Brazil with my husband as a medium, let me address two words to him.

I have returned home, on six months' leave of absence, after three years in Brazil. One of the many commissions I am to execute for Captain Burton, is to see the following pages through the press.

It has been my privilege, during those three years, to have been his almost constant companion ; and I consider that to travel, write, read, and study under such a master, is no small boon to any one desirous of seeing and learning.

Although he frequently informs me, in a certain Oriental way, that "the Moslem can permit no equality with women," yet he has chosen me, his pupil, for this distinction, in preference to a more competent stranger.

As long as there is anything difficult to do, a risk to be incurred, or any chance of improving the mind, and of educating oneself, I am a very faithful disciple ; but I now begin to feel, that while he and his readers are old friends, I am humbly standing unknown in the shadow of his glory. It is therefore time for me respectfully but firmly to assert, that, although I proudly accept of the trust confided to me, and pledge myself not to avail myself

of my discretionary powers to alter one word of the original text, I protest vehemently against his religious and moral sentiments, which belie a good and chivalrous life. I point the finger of indignation particularly at what misrepresents our Holy Roman Catholic Church, and at what upholds that unnatural and repulsive law, Polygamy, which the Author is careful not to practise himself, but from a high moral pedestal he preaches to the ignorant as a means of population in young countries.

I am compelled to differ with him on many other subjects; but, be it understood, not in the common spirit of domestic jar, but with a mutual agreement to differ and enjoy our differences, whence points of interest never flag.

Having now justified myself, and given a friendly warning to a *fair* or *gentle* reader,—the rest must take care of themselves,—I leave him or her to steer through these anthropological sand-banks and hidden rocks as best he or she may.

ISABEL BURTON.

14, MONTAGU PLACE,
MONTAGU SQUARE, W., LONDON,
November, 1868.

THE LUSIADS OF CAMOENS.

CANTO VI.

STANZA XCV.

Amid such scenes with danger fraught and pain,
Serving the fiery spirit more to 'flame,
Who wooes bright Honour, he shall ever win
A true nobility, a deathless fame :
Not they who love to lean, unjustly vain,
Upon th' ancestral trunk's departed claim ;
Nor they reclining on the gilded beds
Where Moscow's Zebeline downy softness spreads.

XCVI.

Not with the viands new and exquisite,
Not with the wanton languid promenade,
Not with the varied infinite delight
Which can so much the generous bosom jade ;
Not with the never conquered appetite,
Which Fortune, ever delicate, hath made,
Which suffers none to change and seek the meed
Of Valour daring high heroic deed :

XCVII.

But by a doughty arm and weapon's grace
Gaining the glory which is all his own ;
With weary vigil, in the steel-forgèd case,
'Mid wrathsome winds and bitter billows thrown ;
Conquering the torpid rigours in th' embrace
Of South, and regions destitute and lone,
Swallowing the tainted rations' scanty dole
Temper'd with toil of body, moil of soul :

XCVIII.

Forcing the face, with fullest mastery,
 Confident to appear, and glad, and sound,
 When met the burning balls, which, whistling by,
 Bespread with feet and arms the battle ground.
 'Tis thus the bosom, nobly hard and high,
 Spurns gold and honours with contempt profound ;
 Gold, honours, oft by thrust of chance obtain'd,
 And not by dint of virtuous daring gain'd.

XCIX.

Thus grows the human spirit heavenly bright,
 Led by Experience, truest, excellent guide ;
 Holding in view, as from some towering height,
 The maze of mortal littleness and pride :
 He who his path thus lights with Reason's light,
 Which weak affections ne'er have might to hide,
 Shall rise (as rise he ought) to honour true,
 Against his will that would not stoop to sue.

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THE
HIGHLANDS OF THE BRAZIL.

PRELIMINARY ESSAY.

THE Brazil is, especially to the foreign traveller, a land of specialties. As he disembarks at Pernambuco the questions proposed to him, even from the guard-boat, are : Is he a Merchant ? an Engineer ? a Naturalist ? a Doctor ?—No ! then—he must be a Dentist ! And—I presume that he is not a Royal Duke or a “ Bristol Diamond,” with loan legibly written on his brow—he will do well, especially if bound for the Far West in the Land of the Southern Cross, to be or to become one of the five recognised castes.

Like the stranger herd, Brazilian authors have also been mostly specialists, each bound to his specific end. When the Annalists of the Jesuits and the Franciscans had had their day, the old travellers preceding the savans who were charged with the demarcation of the frontiers were explorers pure and simple ; who, if they wrote at all, wrote only *Rotêiros* or *Itineraries*. Among the Portuguese may be mentioned the celebrated naturalist, Alexandre Rodrigues Ferreira, sent in 1785-6 on a scientific expedition to the River of the Amazons. The active and intrepid Paulista, Dr. de Lacerda (1790), who, by-the-by, was forbidden to use instruments by a certain D. Bernardo José de Lorena, Captain-General of the Province of São Paulo—a veritable Sultan of Waday—and who died at the Capital of the African Cazembe, was a mathematician and astronomer. Dr. José Vieira Couto (1800-1), of Tejuco, now Diamantina, was a mineralogist ; so was the Pater Patriæ the Venerable José Bonifacio de Andrada e Silva, of Santos (1820). Major Coutinho, the experienced Amazonian traveller, is an officer of engineers.

The Netherlanders, in the olden days, sent the littérateur and historiographer, Gaspar Baerle, *alias* Barlæus ("Rerum per Octennium in Brasilia' gestarum Historia," Amsterdam, 1647), whose ponderous Latin folio has now an anthropological interest; Piso of Leyden, and the German Maregraf (1648), who laid the foundations of systematic botanical study; Arnoldus Montanus (1671), plagiarised by the often quoted Dapper; and G. Nieuhof (1862). Amongst the Germans are Hans Stade (1547); the Prince Maximilian of Wied Neuwied (1815-1817), naturalist and ornithologist; and H.R.H. Prince Adalbert of Prussia, who travelled in Brazil; * the savans Spix and Martius (1817-1820), † the Humboldt ‡ and Bonpland of Southern America; the Baron von Eschwege, a mineralogist; besides the elder Varnhagen and Schuch (senior), Langsdorff and Natterer, Pohl, Burmeister, and other names well known to science.

The French, not to mention the ancients, as De Sery (1563), the "Montaigne of the old travellers"; the Capuchin Claude d'Abbeville (1612), Yves d'Evreux (1613-14), and Roulox Baro (1651), have contributed the mathematician La Condamine; the botanist Auguste de St. Hilaire (1816-1822); the naturalist Count Francis de Castelnau (1843-1847); and the astronomer M. Liais (1858-1862). Besides these are the less reputable names of M. Expilly (1862), who, as his "*Brésil tel qu'il est*" § tells us, came out as a maker of phosphorus matches; and M. Biard (1862), who came out as a portrait painter, and who produced a notable caricature.

The Anglo-Americans sent Messrs. Hernden and Gibbon, officers of their navy (1851), to reconnoitre the Valley of the Amazons. Mr. Thos. Ewbank (1856) was an engineer. The two valuable and now neglected volumes of Mr. Kidder (1845)

* Travels of H. R. H. Prince Adalbert of Prussia in the South of Europe and in Brazil, with a voyage up the Amazon and the Xingú. Translated by Sir Robert H. Schomburgk and John Edward Taylor. 2 vols. Boguc: London, 1849. The Counts Bismarck and Oriolla accompanied this traveller, who ascended the Xingú as far as Piranhaguára.

† Travels in Brazil, by Dr. Joh. Bapt. von Spix and Dr. C. F. Phil. von Martius. London: Longmans, 1824. 2 vols. octavo. I saw this translation at the little English Library, Pernambuco, but have never been able to procure the original.

‡ According to M. de Castelnau the Library of Rio de Janeiro preserves a curious document, highly characteristic of colonial days: this is an order to arrest and to deport Humboldt, if ever found upon Brazilian soil.

§ I cite with pleasure the judgment passed by M. Liais upon this disreputable production (*L'Espace Céleste*, 210): "*C'est faire injure au bon sens de ses lecteurs que d'écrire de pareilles absurdités. Au reste le livre en question est rempli d'inexactitudes. Si l'auteur l'avait intitulé le Brésil tel qu'il n'est pas, il serait d'une vérité parfaite.*"

were written by a missionary, and the joint production of Messrs. Kidder and Fletcher was the work of missionaries.* Of late sundry "*opuscules*" have been published by "General" Wood, Dr. Gaston, and the Rev. Mr. Dunn, colonists, and by Capt. John Codman, who commanded a steamer upon the coast.

We English have given the "British merchant" Luccock (1808-1818); the mineralogist John Mawe (1809-1810); the accurate Koster (1809-1815), settled in trade at Pernambuco; the Reverend Mr. Walsh, High Church and Protestant (1820); Dr. Gardner, the botanist (1836-1841); Mr. Henry Walter Bates, the accomplished naturalist and entomologist (1847-1859), who, in his earlier labours on the Amazons River was accompanied by Mr. A. P. Wallace; Mr. Hadfield (1854), who visited the coast and prospected for it steam navigation; the naturalist, Mr. R. Spruce; and the engineer, Mr. William Chandless, who are still pushing their adventurous way to the skirts of the Andes. Nor must I conclude this skeleton list without mentioning Dr. Lund, the learned Dane, who lived amongst the extinct Saurians in the caverns of Minas Geraes, and the ichthyologist and "man of pure science," Professor Louis Agassiz of Boston (1865-1866), a traveller received with the greatest enthusiasm of which the Brazil is capable.

In this brilliant assembly a mere tourist would or should feel somewhat out of place. I, however, had also an especial object, — *e son pittor anch' io*. H. I. Majesty had remarked with much truth that Central Africa is fast becoming better known to Europe than the Central Brazil.† Even at Rio de Janeiro few would believe that the valley of the Rio de São Francisco, popularly but ungeographically called the Southern Mississippi, is in any but a state of nature. My plan then was to visit the future seat of Empire along the grand artery; how I would

* Brazil and the Brazilians, portrayed in historical and descriptive sketches by Rev. D. P. Kidder and Rev. J. C. Fletcher. Philadelphia: Childs & Peterson. London: Trübner & Co. 1857. A new edition, with corrections, has lately been issued by Messrs. Sampson Low & Co., London.

This production has been somewhat harshly described in semi-official documents as an "elaborate fulsome puff which has done much mischief." Its principal injury to the public has been to engender an im-

udent plagiarism, printed in 1860 by the Religious Tract Society, 56 Paternoster Row, London, and entitled "Brazil: its History, People, Natural Productions, &c."

† I do not call the country "Brazil," when she does not; nor indeed does any other nation but our own. Worse still is the popular anachronism "Brazils," which was correct only between A.D. 1572 and 1576, when the State was split into two governments; and yet the error still lives in the best informed of our periodicals.

make known the vastness of its wealth and the immense variety of its productions, which embrace all things, between salt and diamonds, that man can desire. In Minas Geraes alone the traveller finds a "country as large and a soil and climate as fertile and salubrious as those of England,"* an atmosphere of "*æstas et non æstus*," where the "tyranny of nipping winds and early frosts" is unknown; and, finally, a *fit habitat*—or rather the old home†—for the nobler tropical man about to be, when the so-called temperate regions shall have done their work. "I hold to the opinion," says Mr. Bates, "that though humanity can reach an advanced stage of culture only by battling with the inclemencies of nature in high latitudes, it is under the Equator alone that the perfect race of the future will attain to complete fruition of man's beautiful heritage, the earth."

The date of my journey fell happily enough. The Seventh of September, that glorious Independence Day of the Brazil, worthily commemorated itself by throwing open to the merchant ships of all nations the Rio de São Francisco and the Sweet-water Mediterranean further north. The Minister of Agriculture and Public Works had despatched a steamer to be put together on the upper course of the stream. The President of Minas had lately granted to a Brazilian civil engineer a concession to exploit by steamer the tributary valley of the Rio das Velhas. An English surveyor was laying out a line of rails to connect the Capital of the Empire with the City of Sabará, the future St. Louis; thus it was proposed to link to the Southern Atlantic the water-way which receives a thousand streams, that drains 8800 square leagues of one province only, and which is ready to support twenty instead of the present poor two millions of souls.

Nor is this all. The youngest of empires and the only monarchy in the New World, so richly dowered with physical beauty and material wealth still buried in her bosom, so magnificent in geographical position, with a coast line like that of Europe between the North Cape and Gibraltar‡ appears to be

* The area of England is 57,812 square miles; of Minas Geraes 20,000 square leagues.

† "It is rather in the great alluvial valleys of tropical or sub-tropical rivers, like the Ganges, the Irrawaddy, and the Nile," (let me add, the Euphrates, the Niger, and the Indus), "where we may ex-

pect to detect the vestiges of man's earliest abode." Falconer, *Quart. Journ. of Geol.* 1865. And the great Law of Progression is apparently evolving the future continents and islands of earth more rapidly within the tropical than in the temperate latitudes.

‡ M. Van Straten de Ponthez (*Le Brésil*, ii. 27). Sir John Herschel (*Physical Geo-*

Fortune's favourite child. In 1852,* when the importation of slaves became a nullity, the country was dismayed, and not without reason, by the prospect of a deficient labour-market.† Compulsory service was then the sole source of prosperity to the agriculturist; it was purely and simply his *gagne-pain*.

But her star, her "good luck," as say those hostile to the Brazil, prevailed. In 1860 South Carolina "retracted the connection of State and Union," and resumed her independence. Five years afterwards Southerners began to exchange for happier regions their desolate homes. The movement was fondly fostered by the Brazilian Government; and in January, 1868, the number of the immigrants was stated as follows:—‡

Province of Paraná§ (near Curitiba, Morretes, and Paranaguá)	. 200 persons.
São Paulo (Ribeira district, Campinas, Capivarhy, &c.)||	. 800 „
Rio de Janeiro (in and about the capital)	. 200 „
Minas Geraes (Rio das Velhas, &c.)	. 100 „
Espirito Santo¶ (on the rivers Doce, Linhares, and Guandú)	. 400 „
Bahia	. 100 „
Pernambuco	. 70 „
Pará	. 200 „
Total	. 2700

graphy, p. 87), informs us that South America has an area of 6,800,000 square miles, and a coast line of 16,500 ("1 to 420"—1 : 412 ?), and that it has "little to boast of good harbours." This cannot be said of the Brazil, which has some of the finest ports in the world.

* In 1850 the import slave-trade was prohibited by law; in 1852 the most active measures were taken, and since that time it has virtually been extinct. A committee of the House of Commons (July 19, 1853) gave the following figures:—

In 1847 imported	56,172
„ 1848 „	60,000
„ 1849 „	54,000
„ 1851 „	3,287

In 1853, imported 700 (of whom the greater part were seized by Government).

In 1854 the only slave-ship was seized by the authorities in the Bay of Serinhaem (Pernambuco), and the cargo was set free.

This was the effect of an enlightened majority, who, as M. Reybaud says, raised the cry, "No more traffic in slaves! European colonisation!" It was far from being the work of cruisers. On May 3, 1862, Mr. Christie reported officially to H. M.'s Secretary of State for Foreign Affairs that the importation had wholly ceased, and that its revival appeared an impossibility; and yet we have retained the Aberdeen Bill, one of the greatest insults which a strong ever offered to a weak people.

† A work lately published and attributed to H. I. M. the late Maximilian, who visited Bahia between June 11 and June 19, 1860, gives a melo-dramatic episode of a fight inside the Bay between a slaver and a cruiser. Unfortunately, it adds that the slaves who saved themselves by swimming were employed by the Bahian Railway, whose concession severely prohibits servile labour.

‡ My authority is Mr. Charles Nathan of Rio de Janeiro, who in 1867 contracted with the Imperial Government to bring out in 18 months 1000 families, or 5000 agriculturists. In the list given above he does not include "the New York thieves, &c., who generally work themselves to the Plate River in a few months." The change of steamer-embarkation from New York to Mobile and New Orleans has partly remedied the "scum" evil.

§ Principally settled by Missourians, who come with considerable capital, and who in a few years will make this centre very important.

|| Mr. C. A. Glennie, long acting Consul at São Paulo, estimates the emigration to the Ribeira at 400—500 souls, and the rest who have passed through Santos, at 375 souls, or 75 families × 5.

¶ The Rio Doce is preferred on account of its magnificent scenery, facilities for transport, and superior soil upon which the plough can be used.

The official list of immigrants into Rio de Janeiro during 1867 gives :—

Portuguese . . .	4822, or nearly half the total.
North Americans . . .	1575
English	647
Germans	357
Irish	220
Other nations . . .	2411
Total	<u>10,032</u>

The current year expects 10,000: first-class planters appear inclined to come out to a country where an equal area of ground produces three times as much cane as Louisiana does. Sugar is rapidly supplanting cotton, which has not been found to pay,* and the “Southrons” in the Doce district are studying coffee, which will probably become a favourite culture.

Thus has begun a steady inflow of hard-working, long-headed practical men, accustomed to the use of machinery, and forming in each settlement a nucleus around which European labourers can cluster. As slavery diminishes so immigration will increase, and it is good to bear in mind that the two cannot co-exist. Presently the stream will set in of itself without extraneous aid: the Germans will appear, the Anglo-Scandinavians, and in fact whatever pullulates in the fecund North.† And thus the Empire, despite the want of black hands, will gain labour and follow in the path of the great Northern Republic.‡

In the Valley of the São Francisco River, the emigration process has begun, and the pioneer of civilization is now on its banks. M. Dulot has proved how well calculated is the sub-

* Thus one acre in cotton produces 12 arrobas (each 12 lbs.), which clean at 10\$000=120\$000 (say £12). The same land gives in sugar, 35 arrobas at 5\$000=175\$000, besides the coarse rum obtained from skimmings and so forth.

† In February, 1868, a detachment of 53 persons was sent from London to Rio de Janeiro, and a second party of Irish families, making a total of 338 souls, was being formed. Their passage money was found for them, and the agreement was that they should receive ten days' maintenance free on landing in the Brazil, and have the option of purchasing 100 acres a head at 2 shillings per acre, for the usual term of 5 years. In March, 1868, I heard that the Government agent was about to send out

500 farmers with small capitals of from £100 to £1000. The 391 souls above alluded to were settled in the colonies Principe D. Pedro (S^{ta}. Catherina) and Cananéa in São Paulo.

‡ The torrent of Irish emigration set in towards the United States in 1847, when the famine raged. On March 1, 1845, the population of the island was nearly 8½ millions; on April 1, 1868, it was a little above 5½ millions; and it is calculated that on April 1, 1871, it will hardly exceed that of Belgium. During the 20 years succeeding that time (1866) the great Republic had received an increase of 3,500,000 souls, or one-third the population of the Brazil. The latter, it is computed, doubles her population in 30 years.

tropical plateau of the Brazil to be a home for Frenchmen. How much more, then, for the swarming hive of Northern Europe and for the Anglo-Scandinavians, vulgarly called Anglo-Saxons, who, at an earlier and more energetic period of their history, would have asserted and proved themselves to be the natural colonizers of the South Temperate zones of the world?

It is evident in our present state that every pound sterling charitably wasted upon catechizing races about to perish, and upon the barren hopeless savagery of Africa and Australia, is a pound diverted from its proper purpose. We still devote fifteen vessels of war, 1500 men, and nearly a million of money per annum, to support a Coffin or Sentimental Squadron, which has ever proved itself powerless to prevent negro-export, whenever and wherever black hands were in due demand, and whose main effect upon West Africa has been to pamper "Sã Leone," that Hamitic Sodom and Gomorrah, to fill a few pockets, to act as a political machine for throwing dust into the public eyes, and greatly to increase the miseries of the slave and the misfortunes of his continent.

At the same time we boast of more than 900,000 paupers or persons in receipt of relief. Our poor-rates cost us per annum a total, actually expended, of 6,959,000*l.*: the increase of 1867 over 1866 varies from 4.8 to 19.6 per cent. Population advances in the old home in a geometrical, subsistence in an arithmetical, ratio. The plague-spot of England has been declared to be "over-suckling and under-feeding." Overcrowding produces the horrors of the Black Country, and of Terling and Witham in the "Calf County." Hence the state of "City Arabs," of bondagers and hop-pickers, of "Sheffield saw-grinders and Manchester brickmakers."

The million and a half per annum thus thrown away upon "propagating the faith" and maintaining a Squadron effete in its political use, would long ere this have grown to be a "removal fund." It would have made loyal emigrants of the unfortunate Connaught Irish, and would have supplied strong arms and willing hearts to our colonies, that still want, as does the Brazil, farm-labourers and house-servants. During the last score of years we have allowed millions to exile themselves from our shores and to become Fenians in the New World, a thorn in the side of the present generation, preaching to the world in words of fire the inefficiency, to use no harsher term, of our rule, and a

scandal to future ages. But the fatal system based upon the tripod "*Quieta non movere*," "*Après nous le Deluge*," and the command of Glencrow so grateful to the feeble and the superannuated in body and mind, has allowed us to drift into this our latest and least excusable difficulty.

Half a generation ago, the Irish landlord, the propagator of constitutions and the supporter of "oppressed nationalities," must have known that at least about Sligo discontent was rife, that armed men were drilling at night, that Catholics had thrown off the trammels of the priest and the confessional, and that Irishmen were ready at any moment to strike a blow for what they held to be their rights.

It was not, however, judged proper to startle the many respectables into whose hands the fortunes of Great Britain had fallen since the year of grace 1832, and from whom only 1867 and its consequences can liberate us. The volcano might throb and boil under the feet of the initiated few, but they were bound to feel it and to make no sign. Every parliamentary question upon the subject was answered in a style the most jaunty, off-hand, and self-sufficient; no motion could be made without incurring personal ridicule or obloquy, and the result has been 1867.

Thus far the damage done is irreparable, but we may still prevent the evil from spreading.

The Anglo-Scandinavian and the Anglo-Celt have been described as the great "navvies" of the globe. Before them mountains are levelled; they dig rivers, they build cities, they convert the desert place into a garden—Utah becomes Deseret, the Land of the Honey-bee. The world still wants them; they, in turn, can find many a happier home than Great Britain, where, indeed, it is hard to understand how a poor man can consent to live. The workman coming to the Brazil a miner, a carpenter, or a blacksmith, becomes a mining-captain—perhaps a mine-owner—an agent or land-proprietor, an engineer. The petty shopkeeper in Europe here calls himself at least a merchant, possibly a capitalist. The hedge-schoolmaster is a professor; the clerk rises from 100*l.* to 300*l.* a-year. The governess, so far from being an upper servant, with a heart-weariness before her, too often becomes the head of the establishment, and rules it with a rod of iron.

To these and many others, especially to the unmarried of

Europe, the Brazil may say, in the words of Holy Writ—
 “*Venite ad me omnes qui laboratis et onerati estis, et ego reficiam vos.*”

It has been said that the lower orders of Englishmen, which word includes Irishmen, do not, as a rule, flourish in the Tropics ; that they are mostly, when “left to themselves,” a race

Of men degenerate surely, who have strayed
 Far from the lustrous glories of their sires,
 Deep-mired in vanities and low desires.

But these pages will prove that, with discipline and under strict surveillance, they can do wonders, and when Southerners from the United States shall have settled in the Empire, these men, so well accustomed at home to “drive” whites and to deal with the *prolétaires* and the *colluvies gentium* of Europe, will soon supply the necessary curb.

Hitherto the Brazil has suffered from being virtually a terra incognita to Europe. She is deficient in that powerful interest which arises from “nearness,” and she subtends too vast an angle of vision. The books published upon the subject are mostly, I have said, those of specialists: they are, therefore, of the category “*biblia a biblia* ;” and none can be catalogued as belonging to the class “which no gentleman’s library should be without.”

But as far back as 1862, the London Exhibition proved that this region excels all others in supplying the peculiar species of cotton which our manufacturers most demand. Since that time the fleeting thought of war perhaps did good to both countries by introducing them to each other. And now our ever-increasing relations, social and commercial, with this vast and admirable section of the South American Continent, must lead in time to a closer and better acquaintance than anything that we can now imagine. A great national disgrace was required to atone for the national sin of neglecting our East Indian possessions. The Brazil, I believe, now incurs no risk of being forgotten.

In 1864-5, whilst all other nations exported to the Empire 6,850,300*l.*, Great Britain supplied 6,309,700*l.* out of a total of 13,160,000*l.* During 1865-6, the figures became respectively 6,434,400*l.*, 7,375,100*l.*, and the united sum 13,809,500*l.* The year 1866-7 presents, notwithstanding large purchases of raw

materials, a large decline.* This, however, is transient, the effect of depreciated currency and of deficient industry, resulting from a three years' campaign that drained gold and blood to a distant region—in fact, a Crimean affair in South America. Finally, Anglo-Brazilian debts amount to a little above 14,000,000*l*.

My motto in these volumes, as in others, has been—

Dizei em tudo a verdade
A quem em tudo a deveis.

And certainly the Public has a right to the writer's fullest confidence. It is, however, no pleasant office, when treating of the Gold Mines worked by English companies, to describe correctly the system which has "got them up." But it is not just that the Brazil should bear blame for the unconscience of those who "rig her markets;" and when "Brazilian specs are not favourites: all the Stock and Joint-Stock Companies connected with the country are at a discount;" whilst the money market Review threatens the Empire with the thunders of that monetary Vatican, the Stock Exchange; and when it is reported, even at this moment, that the Brazil, before effecting a loan, will be compelled to pay debts which she does not owe, it is only fair to show the cause, and to call wrong acts by their right names. Of course, unless the whole trick be told, it is better not to tell the tale at all. The reader, however, will perceive, it is hoped, that I have pointed to the system, not to individuals, and that in describing two successes amongst a dozen failures, I have done my best homage to honesty and energy.

While sketching the Highlands of Brazil as far as they were visited by me, my handiwork is totally deficient in the "beautification" of which "serious travellers" complain. It is mostly a succession of hard, dry photographs with rough lines and dark, raw colours, where there is not a sign of glazing. The sketch, in fact, pretends only to the usefulness of accuracy. The day must

* The Brazil imported from England—
During the half-year ending
June 30, 1866 . . . £3,789,882
During the half-year ending
June 30, 1867 . . . 2,738,460

But even with this falling off she stands eighth in the list of our customers, ranking below the United States, Germany, France, Holland, Egypt, and Turkey; above Italy, China, and Belgium, and far above Russia and Spain.

The progress of the Brazilian revenue may thus be laid down:—

In 1864-5	...	56,995 : 928\$000
„ 1865-6	...	58,146 : 813\$000
„ 1866-7	...	61,469 : 437\$000
„ 1867-8	not less than	61,535 : 000\$000

The estimates for the fiscal year 1869 are calculated to be—

Receipts	. 73,000 : 000\$000
Expenditure	70,786 : 932\$000
Surplus	. 2,203 : 067\$000

come when the outlines drawn by other pens will be compared with mine, which will thus afford a standard whereby the progress of the country may be measured. It was judged better to place before the reader certain portions in diary form, not to spare myself the toil and trouble of "digesting," but to present the simplest and the most natural picture of travel. The Brazilians, who, like most young peoples, have a ravenous and almost feminine appetite for admiration and tender protestation, will find my narrative rude and uncompromising. Foreigners here resident, who are generally badly affected to the country,* and who hold it the part of patriotism and a point of honour to support a compatriot against a native, however the former may blunder or plunder, will charge me with "Brazilianism;" but the impartial will give me credit for a sincerity that refuses to flatter or even to exaggerate the gifts of a region which I prefer to all where my travels have hitherto extended. Thus I may escape the charge freely made against almost all who have written in favour of the Brazil, namely, that of having been "induced," or, to speak plain English, of having been bought.†

I have purposely used the word "sketching." My journey covered more than 2000 miles, of which 1150 miles in round numbers were by the slow progress of a raft. The time occupied was only five months, between June 12 and November 12 of 1867: as many years might most profitably be devoted to the Rio São Francisco alone, and even then it would be difficult to produce of it an exhaustive description. I have, however, been careful to collect for future travellers, who shall be masters of more time than my profession allowed me, hearsay accounts of the interesting natural features, the geological remains, and the rock-inscriptions hitherto unworked. Koster, in the beginning of the present century, drew

* Like every country struggling for recognition among the self-reliant nations of the world, Brazil has to contend with the prejudiced reports of a floating foreign population, indifferent to the welfare of the land they temporarily inhabit, and whose appreciations are mainly influenced by private interest. It is much to be regretted that the Government has not thought it worth while to take decided measures to correct the erroneous impressions current abroad concerning its administration; and that its diplomatic agents do so little to circulate truthful and authoritative statements of

their domestic concerns." (Agassiz, *Journey in Brazil*, pp. 515-6). "À Rio de Janeiro on ne connaît guère que Rio de Janeiro, et l'on méprise un peu trop tout ce qui n'est pas Rio de Janeiro," says Auguste de Saint Hilaire with great truth.

† This is at present the popular way to dispose of their opinions who think well of the Brazil. We find extensive reference to "paid puffers of Brazil, and lackeys of its Legation," even in the "Brazil Correspondence, with an Introduction." London: Ridgway, 1863.

attention to these "written rocks" in the bed of the northern Parahyba River. I believe that such antiquities are to be found in many parts of the north-eastern shoulder of the South American continent, which approaches nearest to the Old World. And I hope in a future volume to show distinct "vestiges of some forgotten people who possessed the country before the present race of savages (the Tupy family), and of whom not even the most vague tradition has been preserved."*

My second volume ends suddenly at the Great Rapids of the Rio de São Francisco instead of placing the traveller at its mouth. This is perhaps a caprice. But my pen refused to work upon the petty details of a few leagues of land travel and a mere steamer trip down stream, whilst my brain was filled with images of beauty and grandeur. Nor would further narrative have been of any especial service. A thousand vacation tourists will learn at length that yellow fever in the Empire is not an abiding guest, that her shores can be reached in ten days from Europe, that no long sea-voyage is more comfortable or so pleasant, that the Highlands of the Brazil, which popular ignorance figures to be a swampy flat, are exceptionally healthy, and have been used as Sanitaria by invalids who had no prospect of life in Europe, and, lastly, that a short fortnight spent in the country upon a visit to Barbacena in the province of Minas Geraes, viâ the D. Pedro Segundo R. R., will offer the finest specimens of the three great geographical features of the land, the Beiramar or seaboard, the Serra do Mar, maritime range or Eastern Ghauts, and the Campos, commonly translated prairies. They will not neglect to visit the Niagara of the Brazil, and they will find Paulo Affonso, King of Rapids, more accessible than northern Scotland. From the agents of the Bahia Steam Navigation Company at S. Salvador and on the lower São Francisco River they will meet with every attention, and at the office they will obtain more general knowledge of the country than can be packed into a handbook.

The Appendix contains a translation of a monogram by M. Gerber, C.E., describing Minas Geraes, one of the typical provinces of the Empire of the Southern Cross. It is simply a compila-

* Southey (*History of Brazil*, ii. pp. 30, 653). The laborious author adds, "Rocks sculptured with the representations of animals, of the sun, moon, and stars, with hieroglyphical signs, and if an incurious

Franciscan may be trusted, with characters also, have been recently found in Guyana, the most savage part of South America, and hitherto the least explored."

tion. But it forms an excellent base for future labours, and it is a good specimen of the stores of local information now locked up from the world in the pigeon-holes of Brazilian literature. I failed to meet the distinguished author at Ouro Preto, and I am bound to make an apology for having translated him without his express permission.

Were I here to quote all the names, Brazilian and English, to which the pleasure and the profit of my journey are due, the list would occupy many a page. They have not been ignored in these volumes, and now they shall not be troubled with anything but the heartfelt expression of my liveliest gratitude.

To conclude. The kindly reader will not criticize the smaller errors of sheets which were not corrected in proof.* During my absence from England, my wife, who travelled with me through Minas Geraes, will take upon herself the work of revision, but the last "coup de peigne" must necessarily be wanting.

NOTE.†

THIS Essay has extended to an undue length, but it would not be complete without a list of the authors whose names I have used, and a few observations upon the subject of their labours.

John Mawe : the only edition known to me is "Voyages dans l'Intérieur du Brésil en 1809 et 1810, traduits de l'Anglais par J. B. B. Cyriès."‡ Paris, Gide fils, libraire, 1816. I have not seen his "Treatise on Diamonds and Precious Stones, including their History, Natural and Commercial, to which is added some account of the best method of cutting and polishing them." Svo. London, 1813. The Englishman in the Brazil must often meet his countrymen, if he would meet them at all, in the garb of the Gaul. Thus only have I seen the excellent volumes of Mr. Koster, so often quoted by Southey, and known in the Brazil as Henrique da Costa. The edition is

* Former travellers have noticed a "fatality" attaching to works upon the subject of the Brazil, the unconscionable number of errata required by Manoel Ayres de Casal, MM. Spix and Martius, Jozé Feliciano Fernandes Pinheiro, Eschwege, Pizarro e Aranjó, and the first publication by Saint Hilaire.

† In the following pages the names of certain authors will recur with unusual frequency. The object of these repeated quotations from what are now "standard works," is complimentary, not critical : no one knows more than myself how little my own errors and shortcomings justify me in

criticising. There is a Hakluyt Society for republishing with annotations those who date from a certain number of centuries. The moderns, however, must be read as they wrote ; and since the days when they wrote, many things have been changed. In due course of time they will all be deemed worthy of the Hakluyts, and, meanwhile, notices of their labours will be as valuable to future students as they are unpleasant to the reader in the present day.

‡ This venerable author has merited, by attracting to her the attention of Europe, the gratitude of the Brazil.

"Voyages dans la Partie Septentrionale du Brésil, &c., par Henri Koster, depuis 1809 jusqu'en 1815." Traduits de l'Anglais par M. A. Jay. Paris, 1818.*

"Voyage au Brésil dans les années 1815, 1816 et 1817, par S. A. S. Maximilien, Prince de Wied-Neuwied ; traduit de l'Allemand par J. B. B. Cyriès." Paris, Arthur Bertrand, 1821. "Prince Max." the Lord of Braunberg, has made *époque*, and his collections were valuable in illustrating the natural history of the Brazil.

M. Auguste de Saint Hilaire visited the Brazil in the suite of the Duc de Luxembourg, and during the whole six years between April 1, 1816, and 1822, he travelled over 2500 leagues. This author is respected by the Brazilians more than any other ; he is almost German in point of exactness and painstaking, and the only fault to be found with his narrative is its succinctness, an unusual offence. Of his works eight volumes are familiar to me, and I have quoted them under their respective numbers :

- I. Voyage dans les Provinces de Rio de Janeiro et de Minas Geraes. Paris, Grimbert et Dorez, 1830.
- II. Voyage dans le District des Diamans et sur le Littoral du Brésil. Paris, Librairie Gide, 1833.
- III. Voyage aux Sources du Rio de S. Francisco et dans la Province de Goyaz. Paris, Arthur Bertrand, 1847.
- IV. Voyage dans les Provinces de Saint Paul et de Sainte Catherine. Paris, Arthur Bertrand, 1851.

I could not meet with his "*Flora Brasiliæ Meridionalis*," which was edited with the collaboration of MM. Jussieu and Cambassèdes, nor with the "*Plantes Usuelles des Brésiliens*," nor with the "*Histoire des Plantes les plus remarquables du Brésil et du Paraguay*."

The last French author whose travels in the Brazil were of importance is the Count Francis de Castelnau, who directed the "*Expédition dans les Parties centrales de l'Amérique du Sud*." Paris, Bertrand, 1850. 6 vols. in 8vo.

I have often referred to Robert Southey, whose "*History of the Brazil*" has been admirably translated into Portuguese by a Brazilian.

The three folios, at present scarce and unpleasantly expensive, amply deserve another edition, with notes and emendations. This "great undertaking" of the Laureate's "mature manhood" is characterised in his two valuable volumes by Sr. A. de Varnhagen (*Historia Geral do Brazil*, ii. 344), "not so much a history as chronological memoirs, collected from many authors and various manuscripts, to serve for the history of the Brazil, Buenos Ayres, Montevideo, Paraguay, &c." †

* It abounds in the worst misprints, for instance in the first volume : Cava for Cará (Pref. xxxvii.), Assogados for Affogados (12), Poco for Poço (13), Alsandega for Alfandega (52), Alqueise or Alqueère for Alqueire (55 and 219), Jaguadas for Jangadas (93), Cacinebas for Caeimbas (131), Homems for Homens (214), Andhorina for Andorinha (232), Guardamare for Guardamôr (295), Serra Pequeno for Pequena (333), and so forth.

† Sr. Varnhagen is open to somewhat

the same objection. The historical part of his work is far less valuable than the portions devoted to general information, and the concluding chapters are exceedingly unsatisfactory.

Southey's *History* was continued in two volumes by "John Armitage, Esquire," Smith & Elder, London, 1836. The author was engaged in commerce at Rio de Janeiro, but he wrote under high official information, and his book will ever be most interesting. The English edition and the

“Notes on Rio de Janeiro and the Southern Parts of Brazil, taken during a residence of ten years in that country, from 1808 to 1818.” By John Luccock. London, Strand, 1820. These “Notes” belong to the folio days of travel: we wonder what a “work” would have been. The laborious historian, Sr. Varnhagen (ii., 481), alludes to his not having been able to procure the volume, hence we may judge how little it is known.

“A History of the Brazil,” &c., &c. By James Henderson. London, Longmans, 1821. This is also a folio; it is rather a compilation than an original, and thus it wants the freshness and utility of its rival.

“Notices of Brazil in 1828 and 1829.” By the Rev. R. Walsh, LL.D., M.R.I.A. London, Westley & Davis, 1830. The two stout octavos require correction with a liberal hand; the author seems to have believed every tale invented for him, and he viewed the Empire through the dark glances of our rabid anti-slavery age, happily now past. He is one of the authors who, according to Saint Hilaire, have materially injured British prestige in the Brazil.

“Travels in the Interior of Brazil.” By George Gardner, F.L.S., Superintendent of the Royal Botanical Gardens of Ceylon. London, Reeve, 1846. This estimable author spent in the Empire the years between 1836 and 1841. His forte is botany, but he was also a man of general knowledge, who wrote in a pleasant unassuming style, whose geniality is still appreciated.*

An immense mass of information touching the Brazil is to be found in the official and other documents published at Lisbon, especially in the “*Collecção de Noticias para a Historia e Geographia das Nações ultra-marinas que vivem nos dominios Portuguezes, ou lhes são visinhas. Publicada pela Academia Real das Sciencias.*” Lisboa, na Typographia da Mesma Academia, 1812. The seven octavos are read by few but students, and at present the English public has everything to learn of the truly noble Portuguese literature. As a rule we dislike the language because it is nasal, and we have a deep-rooted and most ignorant idea that Portuguese, the most Latin of all the neo-Latin tongues, is a “bastard dialect of Spanish.”

“*Annaes Maritimos e Coloniaes, Publicação Mensal redigida sob a direcção da Associação Maritima e Colonial.*” Lisboa, Imprensa Nacional. Of this valuable collection many series have been published. I was unable to purchase a copy at the Imprensa Nacional. The Royal Geographical Society of London objected to send their volumes beyond the Atlantic, and my debt of gratitude is to my friend the geographer, Mr. Alexander Findlay, F.R.G.S.†

Portuguese translation are both out of print, and well merit re-issue, if possible with notes and amplifications.

* The object of this note is not to notice contemporary English authors—Hadfield (1854), Hinchliff (1863), and others. I cannot refrain, however, from expressing my admiration of the “*Naturalist on the River Amazons,*” by Henry Walter Bates. London, Murray, 1863. “Publishers say that our public does not care for Brazil,” the author once told me: his volumes have certainly given the correction to this idea.

† It may be deemed curious that no mention is here made of the “*Revista*

Trimensal,” issued by the Instituto Historico Geographico of Rio de Janeiro. The publication is so carelessly supplied that it is well nigh useless. The library attached to the Faculty of São Paulo, one of the nearest approaches to a Brazilian university, has no complete copy, four years’ numbers are wanting, and since 1866 no copies have been forwarded. As regards the Institute itself I can personally afford no information; during my frequent visits to Rio de Janeiro the honour of an invitation to attend its meetings was never extended to me.

A ponderous but valuable work (which an index would make ten times more useful), in 9 volumes, is the "Memorias Historicas do Rio de Janeiro e das Provincias Annexas à Jurisdicção do Vice-rei do Estado do Brazil," por (Monsenhor) Jozé de Souza Azevedo Pizarro e Araujo. Rio de Janeiro, Impressão Nacional, 1822. Another is the *Corographia Brasileira* of (the Abbé) Manoel Ayres de Casal, the "dozen" of Brazilian geographers. The book (printed in 1817) is well known, not so the author: his birth-place has never been discovered, and the only detail of his career which came to light is that he returned with the Court to Portugal and there died. He is now, despite of a few inaccuracies, one of the classics. Of purely geographical compilations we have the "Diccionario Geographico Historico e Descritivo do Imperio do Brazil." Por J. C. R. Millet de Saint Adolphe. Paris, Ailland, 1845. This work, in two volumes, is a mere compilation and is exceedingly incorrect.

Works of local use are—

"Memorias sobre as Minas de Minas Geraes, escripta em 1801, pelo Dr. José Vieira Couto." This excellent little book, which is philosophical, unprejudiced, and not without eloquent and picturesque descriptions, was republished by MM. Laemmert & Co., Rio de Janeiro, 1842. It will frequently be referred to in the following pages.

"Viagem Mineralogica na Provincia de S. Paulo," por José Bonifacio de Andrada e Silva, e Martim Francisco Ribeiro de Andrada. I am unable to give the date, as my copy wants the title page, and none of the Andrada family could supply the information. It has been translated into French by the Councillor Antonio de Menezes Drummond, and it was published in the "Journal des Voyages."

"Historia do Movimento Politico que no Anno de 1842, teve lugar na Provincia de Minas Geraes." Pelo Conego José Antonio Marinho. The first volume was published by J. E. S. Cabral, Rio de Janeiro, Rua do Hospiceei, No. 66, in 1844; the second in the same year by J. Villeneuve e Comp^{le}, Rua do Ouvidor, No. 65. "Padre Marinho" was a red-hot Lusian or Liberal; he was however much esteemed, and after the Revolutionary movement was crushed, he lived out the rest of his days, taking an active part in public affairs, at Rio de Janeiro. There is also a Chronological History of the affair taken from the opposite stand-point, and published under the auspices, it is said, of the President of Minas Geraes, Bernardo Jacintho da Veiga.

"Informação ou Descrição topographica e politica do Rio de S. Francisco," pelo Coronel Ignacio Accioli de Cerqueira e Silva. Rio de Janeiro. *Typographia Franceza* de Frederico Arverson, Largo da Carioca, 1860. Colonel Accioli has laboured hard and well in the field of local Brazilian literature.

"Almanak Administrativo, Civil e Industrial da Provincia de Minas Geraes, para o anno de 1864," organizado e redigido por A. de Assis Martins e T. Marquez de Oliveira. 1^o anno. Rio de Janeiro, *Typographia da Actualidade*. A 2nd volume appeared at Ouro Preto, *Typographia do Minas Geraes*, 1864 (for the year 1865). I had hoped to see a 3rd in 1868, but it has not yet been issued.

"Rapport partiel sur le Haut San Francisco, ou Description topographique et statistique des parties de la Province de Minas Geraes comprises dans le bassin du Haut San Francisco, précédée de quelques aperçus généraux sur la même Province," par Eduardo José de Moraes, Lieutenant du Génie de l'Armée Brésilienne. Paris, Parent, 1866. Its object is a canal.

As regards the Tupy or Lingua Geral,* a subject now so deeply interesting in the Brazil, from whose settled portions the "Indian" element is so rapidly disappearing, I have used the—

"Grammatica da Lingua Geral dos Indios do Brasil, reimpressa pela primeira vez neste continente depois de tão longo tempo de sua publicação em Lisboa," por João Joaquim da Silva Guimarães. Bahia, Typographia de Manoel Feliciano Sepulveda, 1851.

"Diccionario da Lingua Tupy chamada Lingua Geral dos Indigenas do Brazil," por A. Gonçalves Dias. Lipsia, F. A. Brockhaus, 1858. The author was a linguist, a traveller, and a poet, and his early death cast a gloom over his native land.

"Chrestomathia da Lingua Brazilica," pelo Dr. Ernesto Fineira França. Leipzig, Brockhaus, 1859.

A useful handbook to those studying the Flora of the Empire is the "Systema de Materia Medica Vegetal Brasileira, etc., etc., extrahida a traduzida das Obras de Car. Fred. Phil. de Martins," pelo Desembargador Henrique Velloso d'Oliveira. Rio de Janeiro, Laemmert, 1854. It is something more than a translation of the Latin volume,+ published by the learned Bavarian.

Upon the Rio de São Francisco I was accompanied by the—

"Relatorio concernente á Exploração do Rio de São Francisco desde a Cachoeira da Pirapora até o Oceano Atlantico, durante os Annos de 1852, 1853, e 1854," pelo Engenheiro Henrique Guilherme Fernando Halfeld. Impresso por ordem do Governo Imperial. Rio de Janeiro: Typographia Moderna de Georges Bertrand, Rua da Ajuda, 73. This small thin folio is of convenient travelling dimensions. Not so the enormous and costly—

"Atlas e Relatorio concernente a Exploração do Rio de S. Francisco desde a Cachoeira da Pirapora até o Oceano Atlantico, levantado por ordem do Governo de S. M. I. O Senhor Dom Pedro II.," pelo Engenheiro Civil Henrique Guilherme Fernando Halfeld em 1852, 1853, e 1854, e mandado lithographar na lithographia Imperial de Eduardo Rensburg. Rio de Janeiro, 1860. The plans do honour to lithography in the Brazil. His Imperial Majesty, an Honorary Member of the Royal Geographical Society of London, was pleased to forward, in 1865, a copy of this huge folio to our library.

For the Rio das Velhas I had provided myself with a copy of the—

"Hydrographie du Haut San Francisco, et du Rio das Velhas, résultats au point de vue hydrographique d'un Voyage effectué dans la Province de Minas Geraes, par Emm. Liais. Ouvrage publié par ordre du Gouvernement Impérial du Brésil, et accompagné de Cartes levées par l'auteur, avec la collaboration de MM. Eduardo José de Moraes et Ladislao de Souza Mello Netto." Paris et Rio Janeiro, 1865. This is a work having authority, and the style of the folio is worthy of its matter.

M. Liais tells us in his Preface (p. 2) that he has "collected numerous documents upon a crowd of other than hydrographical questions, and has

* The first publication upon the subject was the "Arte da Grammatica da lingua mais usada na Costa do Brazil," by the venerable Anchieta, published at Coimbra, 1595, and now of extreme rarity.

The Jesuit Padre Luis Figueira also printed an "Arte da Grammatica da

Lingua Brasilica," Lisbon, 1687. I have a copy of the 4th edition, Lisbon, 1795.

+ "Systema Materiae Medicæ Vegetalis Brasiliensis Composuit," Car. Frid. Phil. de Martins. Lipsie, apud Frid. Fleischer, 1843.

conscientiously studied the soil, the mines, the climate, the natural productions, the agriculture, and the statistics of the country." These he promises to issue with his Atlas, but in a more portable form. But besides five other Memoires upon various scientific subjects,* he has yet published, I believe, only "L'Espace Céleste,"† which contains notices of his travels and labours in the Empire.

* * * * * *

This list of studies is not imposing. It would, however, have been even less so, but for the unwearied kindness of my excellent friend Dr. José Innocencio de Moraes Vieira, Librarian to the Faculty of Law (Faculdade de Direito) in the City of São Paulo.

* These are, 1, "De l'Emploi des Observations Azimutales pour la Détermination des Ascensions droites," &c. ; 2, "Théorie des Oscillations du Baromètre" ; 3, "De l'Emploi de l'Air chauffé comme force motrice" ; 4, "De l'Influence de la Mer sur les Climats" ; and (promised in 1865) 5, "La Continuation des Explorations scientifiques au Brésil."

† Emm. Liáis, Astronome de l'Observatoire Impérial de Paris. "L'Espace Céleste et la Nature tropicale, Description physique de l'Univers, d'après des observations personnelles faites dans les deux hémisphères." Preface de M. Babinet, desseins de Yan' Dargent. Paris, Garnier Brothers (no date).

CHAPTER I.

WE LEAVE RIO DE JANEIRO.

“Rien au monde n'est aussi beau, peut-être, que les environs de Rio de Janeiro.”
St. Hilaire.

I AM about to describe in this volume a holiday excursion which we made to the Gold Mines of Central Minas Geraes *via* Petropolis, Barbaçena, and the Prairies and Highlands of the Brazil. Our journey has a something of general interest; in a few years it will have its Handbook and form a section of the Nineteenth Century “Grand Tour.” And I venture to predict that many of those now living will be whirled over the land at hurricane speed, covering sixty miles per hour, where our painful “pede-locomotion” wasted nearly a week. Perhaps they may fly—*Quem sabe?*

My project was, then, to visit the head-waters of the Rio de São Francisco, the mighty river here trivially called the Brazilian Mississippi, and to float down its whole length, ending by way of *bonne bouche* with the King of Rapids, Paulo Affonso. In this second act of travel, which is *not* a holiday excursion, the diamond diggings were to be inspected.

After eighteen dull months spent at Santos, São Paulo, I was graciously allowed leave of absence by the Right Honourable the Lord Stanley, Her Majesty's Principal Secretary of State for Foreign Affairs. By command of His Majesty the Emperor of the Brazil, I was supplied with a “Portaria” *—Podoroshna, or especial licence to travel; it bore the signature of His Excellency the late Councillor Antonio Coelho de Sá e Albuquerque, Minister for Foreign Affairs, a name immortalised by the decrees of December 7, 1866, and July 31, 1867, which admitted the

* In former times the Portaria dispensed the traveller with paying ferries, tolls, and other small charges. I did not attempt such trifling economy, and can hardly say whether it is still useful for “dead heading.”

world to, and which regulated the inland navigation of the Brazil. The Minister of Agriculture and Public Works, His Excellency the Councillor Manoel Pinto de Souza Dantas, who took the liveliest interest in the journey, honoured me with a circular letter addressed to the authorities of his own Province, Bahia, where he had lately been President, and where his wishes were law. Finally, the eminent Deputy of Alagoas, Dr. Aureliano Candido Tavares Bastos, Jun., whose patriotic enthusiasm for progress has so urgently advocated the freeing of the coasting trade and the opening of great fluvial lines,* kindly gave me a variety of introductory letters.

Under such auspices we—that is to say, my wife and the inevitable Ego—with a negret answering to the name of Chico or Frank, after exhausting the excitements of the “Rio Season,” left that charming but somewhat drowsy, dreamy, and do-little Capital on the fortunate Ember-day, Wednesday, June 12, 1867. Affectionate acquaintances bade us sad adieux, prognosticating every misery from tick-bites to kniving. What Dr. Couto calls the “old system of terrors” is not yet obsolete, and I was looked upon as a murderer *in posse*, because Mrs. Burton chose to accompany me. A “synthesis of cognate habits” induced Mr. George Lemmon Hunt to see us embark, and he was not alone, for there are “good children” even amongst the John Bull-lings of the Brazil.

“Rio Bay,” like all the beautiful sisterhood, from Cornish “Mullions” westward to the Bay of Naples, must be seen in “war-paint.” Most charming is she when sitting under her rich ethereal canopy, whilst a varnish of diaphanous atmosphere tempers the distance to soft and exquisite loveliness; when the robing blue is perfect brilliant blue, when the browns are dashed with pink and purple, and when the national colours suggest themselves: green, vivid as the emerald, and yellow, bright as burnished gold. Then the streams are silver, then the scaurs are marked orange and vermilion as they stand straightly out from the snowy sand or the embedding forest, then the passing clouds form floating islets as their shadows walk over the waters of the inner sea, so purely green. Then the peasant’s whitewashed hut of tile and “wattle and dab,” rising from the strand of snowy

* His book, “O Valle do Amazonas” (Rio de Janeiro, B. L. Garnier, 1866), is a valuable statistical study of the River, and amply deserves translation.

sand, becomes opal and garnet in the floods of light which suggest nothing but a perpetual springtide. And every hour has its own spell. There is sublimity in the morning mists rolling far away over headland brow and heaving ocean; there is grandeur, loveliness, and splendour in the sparkling of the waves under the noon-day sun, when the breeze is laden with the perfume of a thousand flowers; and there is inexpressible repose and grace in the shades of vinous purple which evening sheds over the same.

Combine with this soft and fairy-like, this singular feminine beauty of complexion, a power and a majesty born of the size and the abrupt grandeur of mountain and peak, of precipice and rock, which would strike the mind of Staffa, and which forbid any suspicion of effeminacy. Such effects of Nature, at once masculine and womanly, alternately soft and stern, necessarily affect the national character. The old sneer that the family of Uncle Sam must not hold itself to be a great people because Niagara is a great cataract, contains even less truth than such sneers usually contain. The "Aspects of Nature" are now recognized influences upon the ideality and the intellect of man. "Onde ha o grande e o bello," says Sr. Castilho, with eminent poetic instinct, "apparece logo a poesia;* and now even we of the little island readily own that "size becomes in the long run a measure of political power." And is not the Beautiful the visible form of the Good? As these pages will prove, travel in the "Land of Dye-wood" resembles travel in no other land. It has a gentleness, an amenity of aspect which the sons of the rugged North see for the first occasion, and which they must never expect to see again. At the same time we shall find amongst the people pronounced traits of character, and an almost savage energy, which show bone as well as smoothness of skin.

There are, however, times and seasons when Rio Bay, the Charmer, bears a stormy dangerous brow, upon which it is not good to look. Again there are days, especially in early winter from May to June,† when her frowns melt into smiles, and when

* "Where the Grand and the Beautiful exist, there the Poet soon appears." This part of the Brazil is a just middle between those physical extremes which over-stimulate or which depress the imagination.

† The Europeanized seasons in this part of the Brazil, as "adapted to the Southern Hemisphere, are the normal four (the Aryan division being originally three, Winter,

Spring, and Summer), viz. :—1. Spring, beginning September 22; 2. Summer, December 21; 3. Autumn, March 20; and 4. Winter, June 21. The Guarany "Indians," or indigenes, more sensibly divided the year into two halves, "Coaracy-ara," sun-season, and "Almana-ara," rain-season. "They are the divisions which we recognize now," says Sr. José de Alencar in

tears follow her laughter. Of such sort was that Wednesday, the Ember-day, in the year of grace 1867; it came hard upon a terrible shipwrecking gale.

Rio de Janeiro, the "very loyal and heroic city," viewed from the quarter and station of the "Prainha," *alias* "Mauá's Wharf," *does* remind eye, nose, and ear of certain sites on the Thames which shall be nameless. You hustle through a crowd of blacks. You make the little jetty under a barrel roof of corrugated and galvanized iron, between piles of coffee sacks, whose beans, scattered over the floor, show that the ruthless "piercer"* has plunged in his scoop, withdrawn his sample, and stocked his home with plundered caffeine. Near the coarse pier of creaking planks lie swamped canoes and floating boats, a red dredging craft, sundry little black steamers, a crowd of loading ships, and a scatter of crippled hulks; a dead dog floats lazily past us, the smoke of Dover stifles us, the clang of hammers has power to *agaçer* our nerves, and we acknowledge the savour of that old Father who once harboured Le Brut of Troy. But here the picturesque "Morro da Saude"—the Hill of Health—sits by the shore clad in Tanga kirtle of grass and tree, whilst close behind, towering high in air, the gigantic detached block culminating in "Tijuca Peak," overlooks the scene like the monarch of mountains he is.

To the south-east are the yellow-ochre buildings of the Marine Arsenal, long and low, and Lisbon-like, with windows jealously barred. The surroundings are a tall red slip-shed, a taller black-shed, fronted by a big, antiquated, and green-painted crane; piles of coke and coal, rusty guns, and old tanks and boilers cumber the ground; in front floats a ship newly born to ocean life, and a mob of smaller craft are made to hug their great mother, the shore. But, again, the upper part of this picture is São Bento's stern old pile, with its massive square front of monastery pitted and dented by the cannon-balls of the stout French corsair,† with its pyramid-capped belfries, whose weathercocks have been weathered down to spikes, and with its gardens of rich sward and luxuriant banana stretching far away in our rear.

his admirable romance, *O Guarany*, vol. i. 361, "and the only seasons which really exist in the Brazil." Moreover it may be said that Rio de Janeiro, the city, placed in the interval between the Trades and the Variable winds, has no regular "dries"

or "rains," a result also brought about of late years by extensive cultivation and deforesting.

* *O furador*, the "sampler;" the word wants, methinks, a letter.

† Duguay-Trouin, who bombarded it in 1711.

And now the little steamer "Petropolis" is under way, making nine knots per hour, very unlike the "open boat"* affected by the travellers of 1808—1825. We rush past the Ilha das Cobras, "Snake Island," a little heap of green slope and granite scarp, with bran-new docks and ancient lines of fortalice and building, all ochre-tinted, to show public property; past the shipping channel, all hull and mast; past the big red Custom-house, said to have cost £300,000, and already showing a graceful sag of some four inches in the centre; past the low, solid buildings, not without the usual steeple, on the Ilha das Enxadas, or "Isle of Hoes," known to the Briton as the "Coal Island," which was sold for a song, and which is now worth a mint of pounds sterling; past the distance-dwarfed eastern wall of the Bay, in the upper part broken hills, by contrast hillocks, and below a town and outlying villages, with houses and villas, forts and churches; past the "Island of the Governor" (Salvador Corrêa de Sá), very properly called in the English "Long Island," from its length of twenty-eight miles, where the ant-eater† having been eaten out, the ant eats out the farmer; past Paquetá, of old "Pacatá," shaped like a figure of 8—that "lovely insular gem," shady with mangos and cashews, and myrtles, and the olive-like Camará,‡ the coquette called the Capri of Rio—classical, charming, and happily without a Tiberius; past the bight of Magé, which deluded the first discoverers into misnaming this little Mediterranean "River of January," and which caused their descendants to miscall themselves Fluminenses, or People of the River; § past slabs of rock, each growing its one or two bunches of vigorous verdure, fruit of that mighty coition of equinoctial sun and tropical rain; past eyots of dull white granite boulders, the blocs perchés and roches moutonnées of De Saussure ("Verily," exclaims a friend, "its name is

* "Falua."

† Especially the species called Tamanduá (*i.e.*, Taixi-mondé, ant-trap) Mirim, or little ant-eater (*Myrmecophaga tetradactyla*), as opposed to the greater ant-eater, Tamanduá Cavallo or bandeira (*Myrmecophaga jubata*, Linn.). The often recurring word miry, merem or mirim (Portuguese—inho—inha—sinho, etc.), a terminal borrowed from the Tupy-Guarany tongue, means small, lesser, least, opposed to osú, asú, wasú, guasú, ussu (it varies according to the syllable preceding it), magnus, major, maximus. The latter corresponds with the termination ão in Portuguese.

Anthropologists are advised to visit Long Island. It contains kitchen-middens of oyster and other shells locally called "Sambaquís," and is rich in aboriginal skulls and stone celts.

‡ A Lantana, one of the Verbenaceæ, a common wild tree in the prairies of the Brazil.

§ Hence we still read in French and English "Gazetteers," and "Compendiums of Geography," "Rio de Janeiro, or Rio de Janario, on the Rio River;" "Rio de Janeiro, située à l'embouchure du fleuve du même nom." (Dictionnaire de la Conversation, F. Didot, Paris, 1857.)

boulder!")—some the size of a house, rounded and water-rolled, others acutangular, and brought on thin ice-rafts and floes by the Glacial Theory from yon towering range of Swiss physiognomy. We look behind us, and the glance plunges into the open sea through the portals of the Colossal Gate, sentinelled by an army of peaks. We look in front at a northern wall, the Serra do Mar, or Sea Range; to the north-east rise the Organ Mountains proper, with their four sharp needles of darker blue, silhouetted against the undefined vapoury background, and resembling anything but organ-pipes;* due north is the Star Range,† where a break and a knob of rock, the usual Cabeça de Frade, or "Friar's Head," mark the natural zigzag taken by the road; while to the north-west the pyramidal and sharply outlined peaks of the Serra de Tinguá prolong the mighty curtain in the direction of São Paulo. And now, eleven miles duly left behind, we dash towards a sprinkling of huts and a low line of mangrove, backed by the sub-range, heaps of dark green hill shaggy with second growth, and not unfrequently topped by a white church. This is the "Mauá Landing Place," and here ends Act No. 1 of to-day's travel drama.

Before we tread the shaky, creaky, little plank-jetty leading to the railway carriages, we may incidentally remark that Mauá Bay and Paquetá Island supply Rio with the best oysters. Bad, however, are now the best. The Riverines should, like their northern

* I may suggest that the discoverers called them Serra dos Orgãos from the huge tree cactus (*Cactus arboreus*, in Spanish *Organo*) which abounds in these mountains. As regards the altitude a popular error makes the Organ Mountains never to exceed 1300 metres. Professor Agassiz (*A Journey in Brazil*, chap. 2) tells us that the highest summits of the Organ Mountains range only from 2000 to 3000 feet, and in chap. 15, quoting M. Liais, who makes the maximum altitude observed by him 7000 feet, he ignores Gardner, who found a still greater height. According to Captain Bulhões the Alto da Serra is 883·21 metres, the road in front of the palace at Petropolis 842, and the Peak of Tinguá upwards of 2000. The Tijuca is 1050, and the Corcovado 664 metres.

† The Serra da Estrella is probably so called from the beautiful highlands of Central Portugal. It is part of the Serra do Mar or Maritime Range, which here corresponds with the Alleghanies, or Appalachian range

of the northern continent. The chain begins in the north of Espírito Santo (S. lat. 16°—17°), where it continues the Serra dos Aynorés, and thence it runs some 150 miles from E.N.E. to W.S.W. It is a barrier cutting off the hot, damp, and fever-haunted maritime lowlands of the coast or Beiramar, from the dry and healthy highlands of the interior, and though only a score of miles from the capital it is still in a state of nature.

Estrella, the port at the foot of the range, and north of "Mauá," was a place of great consequence and bustle during the first quarter of the present century: all the imports and exports of the Far West passed through it, and large covered boats with flat bottoms connected it with the capital. It was then

"*Differtum nautis, cauponibus atque malignis.*"

Now it has passed through the court, has obtained its discharge, and is hopelessly ruined.

brethren of Californian San Francisco, send for spat or oyster-seed to New York, or, better still, to Baltimore. The aboriginal mollusk might meanwhile be greatly improved by scientific ostreiculture. Bed the bivalves for six months where there is no seaward current, but where the rising tide mixes salt water with fresh. There must be artificial collectors to prevent the spat being carried away and lost, and which will save the trouble and expense of removing it to another place. Feed them for the last fortnight with "farinha"* or other flour. So shall you see the long, thick, black beard give way to delicate meat, and the thin angular flatness become plump and rounded.

Here begins Act No. 2. The Mauá Railway, upon which the engine first whistled in the Brazil,† is a very small chapter in that latest and best Euangelion which began, one year before the Brazil was born, with the first "Stockton and Darlington Railway Act," April 19, 1821. Like other little things, "Mauá" had a mighty soul. At the Fête of Industry, when its godfather opened it, he is said to have exclaimed, "A Barra do Rio das Velhas." (*En route* to the valley of the São Francisco River.) But unhappily double the sum authorised—£60,000, instead of £30,000—was expended upon a road, not a railroad, and the prophecy has still to fulfil itself.

The engine pulls us slowly, feebly up a valley, or rather a gully, winding through the lowest sub-range. Then we come to a flat, a strip of the Pontine Marshes—a true crocodile country, all mud and mangrove, miasma and mosquitos, watery even during the driest weather, and in places sandy and sterile. Around the single station, "Inhomirim," the land bristles with the Piri-piri, or Brazilian papyrus,‡ tall and tufty as that of Sicilian Anapas, or

* When farinha, "*the flour par excellence*," is mentioned, the reader will understand that it is the "wood-meal" (farinha de pão), of the Euphorbiaceous "*Manihot utilissima*" (not "*Jatropha Manihot*"), the black or poisonous manioc. The French colonies call it Cassave, hence our Cassava, or Cassada. I will not describe the preparation, this has been done by a century of travellers.

† In the *Esboço Historico das Estradas de Ferro do Brazil* (por C. B. Ottoni. Rio: Villeneuve, 1866) we are told that the contract was made on April 27, 1852; the trains began to run over the whole line in December, 1854; the rules and regulations

arranged for the Company on December 23, 1855, and the total cost was 1,743:764\$121 (£174,300), or 105:683 \$ 000 per kilometre (£10,568).

‡ "Piri-piri" resembles "papyrus" in sound, but the likeness is superficial. Piri is the common rush, and piri-piri (rush-rush) is the largest species. The Tupy language delights in the onomatopoeic or the "ding-dong," "bow-wow," or "cag-mag," and like many other barbarous tongues it expresses augmentation and magnitude by reduplication. Thus muré is a flute; muré-muré a large flute. Ará is a parroquet; ará ará, contracted to arara, (big parroquet), a macaw. As remarked

as the produce of the Whydah lagoon. It shows the saltiness of the soil, and it has never yet made paper. The girding hills are dull green with poor second growth, fit only for hedges. On our left runs the "Estrella Road," and here and there a few palms and plantains, or a tall myrtle, brown with breathing bad air, and clad in rags of grey *Tillandsia* moss, show that the squatter or settler is not far off. As we approach the maritime mountains there are rich fields and clearings for cattle, all the work of the last two years, and made despite the deadly swamp-fevers. After eleven miles or more, exactly 16·5 kilometres, we reach the Root of the Range. Here we strangers stare wonder-stricken at the colossal amphitheatre of "Eastern Ghauts" that fronts us, with shaggy wall forested to its coping, with tremendous flying buttresses shot forth from the main mass, and with slides of bare granite, famous *Montagnes Russes* for Titans at play. How we are to get up is a mystery, till our courier, the indefatigable George F. Land, a Britisher withal, points from the flat to a kind of gap on the right, the path of a superficial torrential drain which feeds the rivulet *Inhomirim*.* It is the key-stone of the gigantic inverted arch, up which the admirable road constructed by Government painfully winds.

Now opens Act No. 3—the gem of the piece. Our well-packed carriage is drawn by four mules; thorough-bred horses could not stand such work. Up we go, blessing the projectors of this smooth, gutter-lined, and parapetted Macadam:† it is a Simplon with prodigious windings; the gradient is 1:16. In places a man may address his friend in the third zigzag above or below him; and a pedestrian who takes the old mule-track will reach the mountain crest before the coach, which gallops over nearly the whole new way. Up we go under giants of the virgin forest, tall and slender as the race of man in these regions, all struggling with fierce energy, like the victims of the Black

by M. Götting the trick is found in most of the ancient languages. He cites *πυρφόρεος* (pro *πορπήρεος*) and *πορφυρα*, which are doublings of *πύρ*, and our modern *pa-pa* and *bon-bon*.

* Pizarro makes *Inhomirim* to be a corruption of *Anhum-mirim*, "the little field," and Mawe, a poor linguist, degrades it to "Morenim." The stream is also called from the port near its mouth, "Rio da Estrella," and the boats of bygone days plied up it towards the mountains: the

torrent of the zigzag valley may be considered its head waters. Some call it the "Fragoso River;" but *Fragoso* (the rugged) is the name of an estate upon its banks, still preserved by the single small station two kilometres from the Serra foot.

† The travellers of 1808—1816, mention the broad "caçada," or paved way of Estrella, but it was doubtless a very rude original of the modern edition.

Hole, for life, which is sun and air, each bearing the "strange device Excelsior" (not Excelsius), and each forming when old a conservatory, a hortus, but not siccus, a botanical garden of air-plants and parasites—along perpendicular cuttings of hard red clay based on blue gneiss, and mossed over with delicate vegetation (the Germans here grumble that weeds grow everywhere when grass will not)—below dank overhanging boulders, and past Troglodytic abodes, whose dripping approaches are curtained and fringed with a lovely pendent vegetation of ribbon-like fern, the maiden-hair or "feather-leaf" contrasting with the gaunt brake, five feet tall.* Everywhere the soft rush and plash, and the silvery tinkle and murmur of falling water, make music in our ears. This beautiful abundance is ever present in the Sea-range of the Brazil, ever ready to quench the traveller's thirst. Up we go, gradually relieved from undue atmospheric pressure, the air waxing thinner and more ethereal, and a corresponding lightness of spirits developing itself. The white road glistens in the sun as if powdered with silver, and fragments of crystallized quartz suggest diamonds to the Northern eye. At every turn there is a noble view of the lowlands, and happily, in this rainiest of spots,† we have a fine evening. Usually in the mornings, thick white vapours lie like the waters of a lake, or rise in smoky wreaths from spots where the foliage offers no mechanical obstruction. In the afternoon,

* A pest of the Brazil, locally called Samambaia (*Mertensia dichotoma* or *Pteris caudata*). I do not know why St. Hilaire III. i. 13, writes *Cumambaia*: this is certainly not the modern orthography. Mr. Caldcleugh (*Travels in South America*,

1819—21. London, Murray, 1825) confounds this fern with the Umbahuba or Umbauba (*Cecropia peltata*, see chap. xxix.), "the tree which the sloths love to frequent." (Gardner (p. 478) makes no such mistake.

† On a similar formation in the province of São Paulo we have the following results for January—December, 1867:—

Months.	Santos, on sea level.	Alto da Serra, Mari- time Crest.	São Paulo, 35 direct miles from the sea.
January . . .	11·18 inches.	11·6 inches.	2·21 inches.
February . . .	8·22 "	12·6 "	2·96 "
March . . .	10·39 "	15·8 "	3·46 "
April . . .	3·04 "	9·5 "	1·77 "
May . . .	8·86 "	13·3 "	3·43 "
June . . .	4·85 "	10·2 "	1·10 "
July . . .	13·98 "	17·9 "	5·04 "
August . . .	4·57 "	11·2 "	3·00 "
September . . .	12·20 "	15·2 "	3·19 "
October . . .	6·88 "	11·8 "	2·67 "
November . . .	10·00 "	13·8 "	2·76 "
December . . .	6·24 "	4·9 "	3·90 "
Totals . . .	100·41	147·4	35·49

cold mountain mists, dense as chaldron-fumes, cling to the cliffs, course down the mighty sides, seethe up from the deep shaggy clefts and valleys, and, swift as racers urged by the hollow-sounding wind, scud and whirl over the dark and lowering hill-tops: you would think it a foamy ocean rushing to flood the world. Again about sunset, when the southern bay lies in all its glory, the Serra is often drenched by a sharp pitiless rainfall.

The noblest panorama is at the Alto da Serra, the summit of the Pass, some two thousand nine hundred feet above sea-level,* especially when a late shower has washed the air of mote, spore, and corpuscle. Here you stand, enchanted by the glories of the view. The picture is set in a monstrous "invert," whose abutments are on the right or west a gigantic cone of naked granite: to the left is a mountain shoulder clothed with dense forest, and capped with one of those curious knobs of bare rock,† gneiss, porphyry, or greenstone, so common in this Sea-Range. Between them, seen almost in bird's-eye view, is Rio Bay, reduced to tiny proportions: it is best described by its distances, which form a study for the perspectivist. The first is the jagged and gashed slope of mountain upon whose crest we are, with valleys and ravines hundreds of feet deep, and densely wooded, as if fresh from the Flood. It falls sharp and sudden upon the second, the Beiramar,‡ or maritime plain, chequered with bright green patches of field and marsh, and studded with hills like mole-earth, tumulous in shape: the Railway, springing from the red and black station, extends its straight and angular lines over the surface, and abuts on the edge of the Bay. Possibly we see the train, with its long white plume of steam streaming and tossing in its wake—no unpicturesque object at this distance is the final destroyer of moribund feudalism. The third is the silvery surface of placid inland sea, broken by the dark length of

* I did not measure it. St. Hil. II. i. 11, assigns to the Pass in the Serra up which he travelled an altitude of 1099·55 metres = 3607 feet. He makes Petropolis 732·80 metres = 2405 feet above sea level. As has been before shown, Captain Bulhoës gives a lesser height to the Pass, and a greater altitude to Petropolis.

† This is the "Cabeça de Frade" before alluded to. Throughout the Brazil it is the popular name for these naked knobs,

and it doubtless dates from the days when the bare-footed shavelings were giants in the land. There are also several "Rios do Frade," in which Franciscan and other missionaries have been drowned.

‡ Also called Serra Baixa, opposed to Serra Acima, the Highlands of the Brazil. The word corresponds with the Italian Maremma, the flats along the Mediterranean from Leghorn to Analfi.

Governor's Island, still fronting bright Paquetá, both the centres of smaller satellite formations. Backs this basin the white mass of City, sitting near the waves, with shipping that dots the shoreline: above it, beginning with the "little turn to the left" into the misty Atlantic, are all the well-known features of the majestic block, the Sugarloaf bending backwards from the Morro da Cruz; the fantastic Corcovado, here like a parrot's beak; the Gaviá Cube, even at this distance quaint and strange, and the lumpy dome of Babilonia's rock; whilst the Tijuca Peak, apparently double and bifid, towers with cloudless outline, deep blue upon a sky-blue ground. And to the right there is still a fifth distance, beautiful and mysterious, where filmy highland blends with the lower heavens.

This is beautiful—a delight, an enchantment! But there is no anorexia here, and certain materialisms, appetite for instance, are becoming impudent. A cold wind rushes through the Pass, and the thermometer has fallen from 72° (F.) to 62°—shivering point in the Tropics. We shoot the Barreira da Serra, the much misplaced toll-gate, loudly calling for a writ "de essendo quietum de Theolonio," and the station of Villa Theresa. Then through the southern quarter of Petropolis, the "Ueberpfalz" of the German colonists, the northern town being their "Lower Palatinate." We leave Maurin Valley to the right, and descending rapidly, we find ourselves, after a last stage of ten miles,* comfortably housed in the "Hotel Inglez," kept by Mr. and Mrs. Morrill.

Here the curtain falls upon a pleasant scene, composed mainly of a dining-room and a bed-room.

* Namely, eight miles to the summit of the range—the old road being three—and two to the hotel.

CHAPTER II.

AT PETROPOLIS.

Aqui pelo contrario poz Natura
Por Brasoës da primeira architectura,
Volumes colossaes, corpos enormes,
Cylindros de granite desconformes,
Massas, que não erguerem nunea humanos
Mil braços à gastar, gastar mil annos.

Assumpção Fr. Francisco de São Carlos.

I HAVE given a few pages to this Cockney trip, this Brazilian run down from London to Richmond. My object is partly that the thousands who well know the way may thus be able to test the accuracy of my descriptions. Books of travel, it may be remarked, depend for permanent character upon the opinion of "experts,"—that is to say, of those who live, or who have lived, amongst the scenes depicted. There is a well-known work, much read in England, but called in Egypt the "Romance of the Nile;" despite many editions, it is dying the death.

Moreover, as hinted in the last Chapter, vacation and other tourists will not long neglect the "Empire of the Southern Cross." The beauties of yesterday and to-morrow may be reached within three weeks of tranquil and varied voyage from Lisbon; and he who has coached from Rio de Janeiro to Juiz de Fôra will have seen Nature in equatorial Africa and in the lowlands of Hindostan. Some day the public will unlearn the "fact" that yellow fever is endemic in the Brazil,* and will

* It is partly the fault of Brazilian authors that this evil report has become chronic in Europe. Thus in the "Compendio Elementar" of Sr. Thomaz Pompeo de Souza Brazil (4th edit. Rio: Laemmert, 1864, p. 472), we read of the climate of Rio Janeiro, "É pouco salubre, principalmente depois da invasão da febre amarella, que alli ficou endemica." The little volume published by the Religious Tract Society in 1860 was as premature in de-

claring that yellow fever in the Brazil is an abiding guest. The disease between 1850 and 1861 appeared upon the coast without extending to the highlands, and then vanished suddenly as it came. It is regrettable to see such statements in popular books intended to "diffuse knowledge," and to think of the fate of the hapless scholar who, before he can *know* anything, is compelled to go through a triple process—to learn, to unlearn, to relearn.

master the truth that her climate, duly considering that it is distinctly tropical, is one of the healthiest in the world.

The reason which led me carefully to sketch the excursion from the metropolis to Petropolis, dispenses me with describing the latter. Yet, in this its hour of extremest need, when the D. Pedro II. Railway is threatening to annihilate the coaches by abstracting the passengers, and to shut up the Mauá line by withdrawing its salt and coffee; and when even Mr. Morrith, who, in 1841, horsed the last mail to Manchester, threatens to close his hotel and to give up his labours, commenced in 1853, Petropolis must have a few lines of praise from me.*

It is no small matter to find within five hours of Rio de Janeiro a spot where appetite is European, where exercise may be taken freely, and where you enjoy the luxury of sitting in a dry skin. No place can be better fitted for the Pedro Segundo College, which is now in the heart of the city, and the country to the west is invaluable as a sanitarium. Petropolis was left unscathed by the yellow fever of 1849—61,† and by the cholera of 1856. It abounds in mineral springs, especially the ferruginous; and in the “Municipality of the Court,” the Columbia of the Brazil, many of both sexes suffer from gastric derangement, and want a “Bismarek”—blood and iron. Surely His Imperial Majesty will not abandon this St. Cloud, this city of his own creation, the “small, miserable village of Corrego Secco”—“Dry Stream Bed”—converted by him into a court and cascade.

Petropolis—or rather, the “City of S. Pedro de Alcantara”—may be said to date from 1844. She is a child, but old enough for a municipal chamber and aldermen, police authorities, and all the other material of self-rule or misrule. This lust for cityship, a part of “fonctionmanie,” is prevalent in the Brazil as in the United States. Mr. Bayard Taylor terms it a “vulgar, snobbish custom.” I presume that boys everywhere long to shed their jackets, and that few men despise a “fat appointment.” See her on a bright, clear day, and you will find her a “coolness to the eye.” Down the main thoroughfares, “Emperor Street”

* Thus it is that in 1867, though the road has been paying steady dividends of about 13½ per cent., the value of the stock has not improved above quotation of 46¾ per cent. discount. (Annual Report of Mr. Henry Nathan.)

† My authority is a short report upon

yellow fever by Dr. Croker Pennell, Rio, 1850. Yellow fever in the Brazil apparently does not rise high: the city of São Paulo, also 2000—2400 feet above the sea-level, escaped the plague. In Venezuela, I am told, the fever line extends to nearly double that altitude.

and "Empress Street," pour bubbling, clear brown, gravel-floored streams, the Piabanha* and its feeding runnels, purer than those of Salt Lake City. Encased in lively green grass, they are crossed by black and scarlet bridges, and they will be shaded with velvety stapelias, feathery Brazilian cedars,† and quaint Barrigudos, the pot-bellied, spindle-like bombax. We are now in the land which produces the pine tree and palm, a more poetical and picturesque combination than the orange and myrtle, which here also are at home. Detached houses, villas and kiosks, chalets and cottages, extend themselves, form lines and fine off, giving to the place on paper the look of a gigantic crab, whose centre is where the Piabanha proper begins. Polychrome is the taste, and it is good—always excepting white pilasters upon dark chocolate ground. Many roofs are painted red—the Briton mutters "pigs' blood;" but the tint lights up, like the eye of a snake, the cool dark verdure of the hanging forest. In the flowery season the gardens are gorgeous; there are country walks in all rhumbs, and you can find a solitude within five minutes of your door. The naval officer who complained of Petropolis because he had always to look upwards, could easily have discovered points from which to look down upon wonderful glimpses and prospects of blue-green background. Nor is it a hardship to gaze upon mountain sides and peaks so ununiform in shape; here with the virgin forest seen in profile from a partial clearing, there deep with gathered shade, twined and corded, throttled and festooned with all its lianas, tufted with wonderful epidendra and air-plants, bearded with gigantic mosses of grotesquest shape,‡ and rich in every vegetable form from the orchid to the cardamom, from the simple bamboo and palm to the complicated mimosa, from the delicate little leaves of the myrtle to the monstrous aroids and the quaint stiff cecopias or candelabra trees.

* It derives its name from a small fresh-water fish. Mr. Walsh has named it "Piabunda." I have been careful in ascertaining the meanings of indigenous words which ere long will be forgotten throughout the Brazil.

† *Cedrella odorata*, a fine scented timber. The superstitious in the Brazil will cut it but will not burn this wood, which supplied the "True Cross." The trembling maple once enjoyed the same reputation in England.

‡ Called in the Brazil *Barba de Pán*. The people here ignore the use of this epiphyte, which makes excellent girths, surcingles, and bands that require elasticity and strength. On the other hand its astringent properties are well known, after a bone-dislocating ride, or a heavy fall with a mule, the sufferer is put into a hot bath, in which the moss has been boiled, and he soon feels the benefit of the "tanning-process."

Nor is the population of Petropolis less pleasing than the scenery. We are not in the "Helvétie Meridionale," but in a tropical Ems, where the valleys are *thals*, the rills are *bachs*, and the hills are *gebirge*; where white-headed boys shout at us, and open-faced women smile at us, and where the broad accent of the Fatherland falls with agreeable reminiscences upon our ears. Compared with the formality, not to say the primness, and at times the moodiness, of the Luso-Latin race, these bees of the northern hive appear peculiarly genial, and my friend Mr. Theodore de Bunsen justifies me in asserting that as a rule the Creole Germans are here an improvement upon the Teuton at home.

CHAPTER III.

FROM PETROPOLIS TO JUIZ DE FÓRA.

“Au milieu d’une des vallées les plus accidentées du globe, véritable vallée Alpine, une route magnifique, aux pentes douces et régulières, comme il en existe à peine encore dans l’Europe même, œuvre gigantesque par les immenses travaux d’art qu’elle a occasionés, et qui fait honneur au Brésil, unit Pétopolis, ou mieux Rio de Janeiro, à Juiz de Fóra.”—*M. Liais.*

THE dark of other days, when the difficulties of Brazilian travel were to be dreaded, used to spend half a week on mule-back between Petropolis and Juiz de Fóra. The distance is $91\frac{1}{4}$ miles, or, more correctly speaking, 146·8 kilometres. We shall see the end of it in nine hours, halts not included. It may be divided into three sections—forty miles of descent, twenty-one of flat, riverine valley, and thirty of ascent.

We were six in the jaunting car, Major Newdigate and his brother, “on the rampage,” from Canada; a personage whom I shall call Mr. L’pool; and our host, Mr. Morrith. I never saw so good-tempered a man as the latter; it was admirable to mark the unflinching patience with which he stood the galling fire of interrogation from four persons armed with four several note-books, and each asking simultaneously his or her own question. We called him the “Angel Morrith.”

At 6 A.M. on Saturday, June 15, 1867, the top-heavy mail, carrying seventeen passengers, and twenty-eight mail bags, a weight of three tons, left the Hotel Inglez, and revived many coaching recollections. It was purely English, rigged out *à la Brésilienne*. The panel was inscribed “Celeridade,” instead of bearing Her Majesty’s arms. The country bumpkins were slaves of both sexes, whose Garibaldian shirts showed that they were in process of sale. The guard mounted a glazed and japanned hat; coachey was a stout young German, and the team was composed of four fiery little mules. It is a spectacle to see their rearing and

dancing, and when the ostler casts off, their frantic rush and plunge at the collar, especially in the cool of a Petropolis morning. "All right" is then a temporary "all wrong." On the other hand, no passenger can quote the old growl—

"Heavy roads, and horses weak,
Coachman drunk, and guard asleep."

We bowled in our char-à-banc through the city of D. Pedro, down the valley of the Piabanha, over the noble road known as the União e Industria. The old highway to Minas Geraes, described by travellers, and still traced upon our maps, lies far below, to the right. It is marked by large deserted houses, and by huge hedges of the artichoke-shaped Pita,* curious in its flower, the last production of a long, hardy life. As early as 1840 Gardner passed over ten leagues of rolling road, intended to connect the Capital of Minas with that of the Empire; and the Provincial Assembly at Ouro Preto raised by law upwards of £40,000, to be recovered by tolls. The new line, whose thoroughness of execution is admirable, was laid out by the superintendent, Capt. José Maria de Oliveira Bulhões, of the Imperial Engineers, and his aides, Messrs. Flageollot and Vigouroux, assisted by the two Kellers, father and son.† I saw, without surprise, in the virgin forest, French road-rollers, civilized appliances which had not reached London by May, 1865, when the hoofs of blood-horses, and the costliest wheels from Long Acre, still did the dirty work.‡

The team was changed at the "Farm of Padre Correa," situated in a hollow surrounded by low hills. It is mentioned with gratitude by many a traveller.§ The good farmer-priest, so celebrated for

* *Agave americana*, or *fetida*, also called *yucca* and *bayonet* plant, from its straight, stiff-armed leaves. Its fibre is well known, and the robust flower-stalk, thirty feet high, supplies the best of razor strops, and of corks for the insect-pinking naturalist. This is the part properly called *Pita*, a word popularly transferred to the whole.

† The germ of the idea was a railway survey made for the Barão de Mauá by an English engineer, Mr. Edward Brainerd Webb. The road was projected in 1857, under Sr. Mariano Procopio Ferreira Lage. When we travelled there, M. Audemar was resident engineer. Prof. Agassiz (*A Jour-*

ney in Brazil, p. 63) speaks of "French engineers," but omits the name of Captain Bulhões, which appears in every inscription. Thus foreigners in the Brazil often claim and manage to carry off the honours due to the natives.

‡ In April, 1868, road locomotives were tried upon this road with entire success: steam omnibuses for passenger traffic, and traction engines for heavy goods, are to be introduced in lieu of mules.

§ John Mawe (1809) speaks of Padre Correa, his negroes, his forges, and his hospitality. Luccock (1817) describes Padre Correio, his mansion-house and his ambition. St. Hilaire (1819), Caldeleugh (1821), and

his peaches, has long been dead, and the house, which formerly received royalty, now lodges the company's live stock. Now the aspect of the road waxes motley. There are mule troops (*tropas*), divided, as usual, into lots of seven or more, each "lote" being attended by its own "tocador," or driver. These ships of the luxuriant S. American desert are freighted with salt and sundries, forming the provincial imports, and they bring from the interior coffee and cotton, raw and worked. The brutes are our "black beasts;" they *will* stop and turn to us their sterns, and lash out fiercely, and huddle together, and dash down the middle of the road, as if determined to upset us. The "eachorro brabo,"* or fierce dog, here an "institootion," flies at us from every turn. The four-wheeled carts are palpably German, very unlike the Brazilian "plaustra," which have descended unaltered through modern Portugal from ancient Rome. Pigs meet us in droves: as usual in the Empire, they are fat and well-bred, especially the short-legged and big-barrel'd "box-pig."† Some of the goats, with dun golden coats and long black beards and points, remind me of Africa. The sheep are far from being Merinos; lean, ragged, and ram-horned, they justify the popular prejudice against mutton.‡ Black cattle are painful spectacles, scared and eaten by the white grub of the local Tzetze.§ The day is coming when the

Gardner (1841), have not forgotten him, and the Rev. Mr. Walsh (1829) saw part of the Imperial family at the establishment.

* "Bravo"—wild, and sometimes "poisonous"—applied to fruits and plants, is generally pronounced "brabo." Hence our mutilated word "Brab," or wild date tree. This is a legacy from the "Gallego," who calls Vinho Verde "Binho Berde," as with us high hills become "igh 'ills." The peculiarity is of old date, as Scaliger shows,

"Haud temere antiquas mutat Vasconia voces,
Cui nihil est aliud 'vivere' quam
'bibere.'"

† Porco Canastra, a term derived from "Tatu Canastra," the armadillo of that shape. It differs from the true Tatu (the black tatou of Azara, *Essais*, tome 3, 175), and from the tatu-peba, or flat tatu.

‡ "Mutton was, and still is," says Luccock (p. 44), "in small request among the people of Brazil, some of whom allege, perhaps jestingly, that it is not proper food for Christians, because it was the Lamb of

God which took away the sins of the world." St. Hil. (III. i. 44, 225) casts doubt upon the assertion, and declares that mutton is poor food in the hot parts of the Brazil. Mr. Walsh (ii. 54) confirms the assertion that there is a popular prejudice against mutton, and so we may remember there is in Naples. The objection is also mentioned by John Mawe (i. chap. 5, and especially in chap. 7.)

My second volume will prove that in one part of the Brazil, at least, mutton is preferred to beef, and is held to be the natural food of man; also, that the meat is excellent, not only in the highland prairies so well-fitted for wool growing, but upon the hot banks of the Rio de São Francisco.

As a rule, throughout the Empire, however, food prejudices are uncommonly strong, and the art of Soyer is uncommonly weak.

§ It is called "Berne." The word is generally explained as a corruption of Verme (worm), but I believe it to be of Guarany origin. The worm is mentioned by Azara, who believes that it penetrates the skin. Prince Max (i. 29) reasonably

fine beef of São Paulo and Paraná will supplant, at Rio de Janeiro, the over-driven, under-fed, and worm-blown meat which now scantily supplies her monopolised butcheries.

At the stations we find the usual varieties of the Gallinaceæ. There are a few Guinea fowls, sometimes pure white albinos. They are rarely eaten, not because they are bad, but because they prefer an ant diet. Pigeons multiply: here, as in Russia, they are a "holy emblem." The goose is a bird to be looked at, and is generally as safe from the Brazilian, who believes that the main of its diet is snakes, as from the ancient Briton. Unless fattened it is dry and tasteless as the turkey, perhaps the worst of all *volaille* in the Empire. The best are the ducks, especially the young "Muscovies" or "Manillas" (*Anas Moschata*, Canard de Barbarie, indigenous in the Brazil). There is another variety of almost anserine proportions, and these are often half wild, flying away from and returning to their homes. Of poultry proper there are the common breed, the knicker-bocker'd Cochin China, here not "A 1 for the table;" the "Pampa" or piebald, prettily marked with black on a white ground; the "Nanico," a pert, pretty bantam; the Gallinha napeva, a short-legged or "dumpie";* the "Sura," a tail-less variety—nothing to do with *M. de Sora*; the "Tupetuda" or "Cacarutada"; the "Polish" or "pollish," so called from its top-knot; and the Arripiado or frizzly chicken of the United States, used in African superstitions. The latter, when gaitered down the legs (*emboabas* or *sapateiras*), is an excellent layer of eggs. The tall thin bird, with a peculiar screaming and prolonged crow, which travellers have converted into a singing cock (*musico*), and which the superstitious believe to be a descendant from the bird which warned St. Peter, startles the stranger's ear.† There are also fowls with dark bones, which the people sell cheap, holding them as the Somal do all volatiles, to be semi-vulturine. We especially remark the gallinaceous hermaphrodites, hens with spurs, and the haughty

doubts this. Many tales are told of negroes losing their lives in consequence of the grub being deposited in the nose and other places: if squeezed to death and not extracted, it may, of course, produce serious results. The usual treatment is by mercurial ointment.

* This bird can hardly run, and fattens quickly. I found the breed in Unyauwezi,

and I tried to bring home caged specimens, but they all died en route.

† The people say that this arises from "Gôgo," not the pip, but a thickening of the membranes of the throat. John Mawe tells us that in his day the bird was greatly valued when its voice was fine. The sound always appeared to me "croupy."

look of the cock. One of the most interesting, and by far the ugliest, is the Gallinha mesticia, or da India, a lank, ragged bird, with yellow shanks and a dark bottle-green plume turned up with red; the crimson neck and breast are nude of feathers naturally, but appearing as if plucked. A specimen of this bird is kept in the poultry-yard, as the hog in the Persian stable, to maintain its health by attracting all the sickness. Hen-wives, and husbands afflicted with the hen fever, may learn that in the Brazil those neutrals, the capons, are remarkable as dry-nurses, tending chickens with a parent's care. And the much-talked-of crane, the agami or ogami of the Amazonian basin, described as bearing the relation to poultry which a shepherd's dog bears to sheep, and locally called "Juiz de Paz." Juge de Paix is, so far from being a feathered Quaker, and despite his "pretty looks and ways," the most turbulent and pugnacious of his family.

I reserve for a future book my observations upon the acclimatization of the magnificent Gallinaceæ of the Brazil. Europe has borrowed but one bird from the New World. Remain the curassoa (Hoeco or Mútum, *Crax Alector*); the many species of Jacú (Penelope), more gamey in flavour than our pheasant; the Nambú or Inamba (*Tinamus*); the Capoeira (*Perdix guianensis* or *dentata*) and many others.

Many roadside tenements appear to be, but are not deserted; the inmates are "cutting tie-tie,"* as the local slang is; they have fled during the day from conscription into the bush.† The third stage from Pedro do Rio to Posse (Possession), ‡ becomes interesting. The broadening River Valley affords a vista of the now respectable Piabanha, no longer a rowdy mountain torrent. Gigantic slides of forest-crowned granitic rock, bare-sided and smooth-sloped, except where pitted with weather-holes and tufted with Tillandsias and Bromelias, which seem capable of growing upon a tea-table, rise sheer in the brilliant blue-pink air of morning. The climate is a notable improvement upon that of Petro-

* Tirando Cipó. This word, sometimes written Sipó, and erroneously Cipó (the til or cedille not being required), means in Tupy a root; Cipó im, for instance, is the climbing salsaparilla. In the Brazil it is equivalent to the Portuguese "tre-pador" (climber), to our "liana," and to the Anglo-negro "tie-tie." The best for making rope is said to be the Cipó cururu; but these climbers and vines are of course

little studied.

† I would remind my readers, that during the Crimean war, when a conscription was talked of, it was declared that the population of certain works in Derbyshire would "flee to the mines, and lead a sort of Robin Hood life under ground."

‡ Guarda da Posse—the Guard of taking Possession—was an old name for military posts.

polis; there the warm damp sea breeze condensed by the cold mountain tops, drenches the Serra, and "tips over" into the settlement; here it is glorious summer, with the winter of discontent a few miles to the south. Coffee begins to appear, but in lowly guise, stunted and sickly; the soil is mean, and the shrub is too closely planted. "Clear sowing" would make the half better than the whole; moreover, field hands are wanting, the soil is rarely "beneficed,"* and the surface shows a carpet of weeds.

Posse is a place of some importance, which collects the rich produce of the districts about the Porto Novo da Cunha to the east. After Luiz Gomez, the sixth station, the land wants nothing but rotation of crops; and the cotton cure would heal all its present ills. From the roadside under the grassy humus of the River Valley, Professor Agassiz found "drift" in immediate contact with the floor of crystalline rock, and he observed that where it lies thickest, there the coffee flourishes most. It determines, he says, the fertility of the soil on account of the great variety of chemical elements contained in it, and the kneading process which it has undergone under the gigantic ice plough. The glacial theory has inserted its thin edge into the Brazil; the student, however, is puzzled to account for the absence of those grooves and striæ which in other lands show the gravitating action of the ice fields. Nor has any satisfactory explanation been given; the sun and rains of the tropics can hardly effect what the frosts and the sudden climatic changes of the temperates have failed to effect.†

The Piabanha now flows between heights of the blackest virgin forest; and the dark lush verdure, contrasting with the grey-yellow or pale-green of the poorer lands, shows its wealth. In the cuttings we find a paste of red clay‡ deeply tinged with oxide of iron, proceeding from the mica and based upon whitish grey gneiss. The banks are a double line of noble growth, the

* Beneficialo. Improvements made by a tenant are called "benefitorias."

† My excellent friend, Du Chaillu (2nd Exp., chap. 15), found these marks distinctly shown upon rocks close to the Equator: "Whilst I am on the subject of boulders and signs of glaciers, I may as well mention that, when crossing the hilly country from Obindji to Ashira-land, my attention was drawn to distinct traces of grooves on the surface of several of the blocks of granite which there lie strewed about on the tops

and declivities of the hills. I am aware how preposterous it seems to suppose that the same movements of ice which have modified the surface of land in northern countries, can have taken place here under the Equator; but I think it only proper to relate what I saw with my own eyes." This testimony is the more valuable as the author seems not to see its import or its importance.

‡ Barro vermelho, of deep colour, like brick dust.

“vestimenta” or clothing by which the Brazilian farmer judges the soil. In places the precipices are so thickly covered with timber and undergrowth, that the river dashes unseen down its bed. Worth a million of money if within excursion trains of London or Paris is the bamboo-copse.* The cane appears in cones and live columns that invest the trees, in piled up feathery heaps, in serpentines and arches, in the most fantastic figures, and in those graceful waving curves upon which the eye delights to dwell. There is an immense variety, from the thorny large-leaved pinnated and thick-stemmed “Taquarussú,” fifty to sixty feet long, to the tufty and lanceolate Criciúma, which cuts like the sugar-cane, whilst other species bend over the road, tapering in the semblance of a fishing-rod. Thyrsi of climbing plants, clinging to the dead trunks, suggest cypresses. The Cipó matador, or murderer liana, is our old friend the “Scotchman strangling the Creole” on the Isthmus of Panama, and the “Parricide tree” of Cuba. Often thick as its victim, this vegetable vampire sometimes rises from the neck-compressing coil and stands up like a lightning conductor.† “Birds of the gaudiest plume vie with the splendid efflorescence of the forests which they inhabit;” especially the large-beaked black and orange-throated Rhamphastus (discolorus), of the exclusively American family. From the densest brake we hear his Tucano! Tucano! but we cannot, like the travellers of 1821, convert him into a stew. Being eagerly hunted, these beauties are very timid, and perch on the tallest rocks and trees; for two years I have vainly attempted to rob their nests in order to observe whether the colossal bill is or is not found within the egg. They are easily tamed, they make excellent pets, and with their “Lord Hood’s noses,” they are comical as court fools.

Presently our old friend the Piabanha sweeps away to the right and we part for ever. It falls into the Parahyba do Sul‡ river at

* Locally called Taquára, or Tacoára, and in the dictionary, Tacúara (Bambusa To-goara, Mart.). Another Indian name is Tabóca. The Taquárussú is sometimes forty feet high, and thick as a man’s arm; the branches are armed with short, thick thorns, and the Botocudos, like the Hindus of Malabar, made vessels of it, the joint-sept forming the bottom. I have seen Brazilians carrying long segments by way of canteen. When young, this large reed contains a

supply of sweet water, often useful to travellers. The siliceous exterior recommended the bamboo for arrow tips, and the savages, we are told, made of it their razors.

† St. Hil. III. i. 30. Bates, i. 50, well describes this parasitic fig, which he calls the “Cipó matador, or the murderer liana.”

‡ Parahyba, called do Sul, to distinguish it from the stream that waters the northern province of that ilk, is usually explained to

Tres Barras, the three sister waters reminding us of "Nore, and Suir, and Barrow;" the Parahybúna, with which we are to make acquaintance, is the northernmost of the trio. Running along the flat valley we sight the Parahyba without fearing its register or custom-house;* this place was terrible to strangers smuggling diamonds and gold dust, and it has consigned many an unfortunate to life-long imprisonment or to Angolan exile. The river which I have seen so small near São Paulo, is here broad as the Thames at Battersea, and so stately a king of the valley that I can hardly claim acquaintance with him. "Engineer's art" is rarely artistic, but the Birmingham-built bridge, with 320 tons of iron and latticed girders painted red, put together by Mr. O'Kell, is an effective adjunct to the scenery; its vermilion sets off the deep luxuriant verdure, as the fisherman's cap becomes the glaucous waves. This fine bridge, and another at Parahyba do Sul, the city, which cost 800 contos, will be thrown out of employment, and three others have been built for the use of the D. Pedro II. Railway. Thus it is the money goes; and thus one river has three bridges, whilst half-a-dozen others have not one.

At 11.30 A.M., after four hours of actual travelling, we reached Entre Rios, "Betwixt the Rivers,"† the half-way house. Here a breakfast—and a bad breakfast too—awaited the passengers. Whilst the "feijão" was being served up, I inspected the foundations of a railway station which will put to shame the hovels answering to that name on the majority of the Anglo-Brazilian railways: these remind me of the venerable remnants of Stephenson's line, the "Liverpool and Manchester," which still linger for instance at Newton Bridge. A few months after our visit, the railway was opened to Entre Rios, thus cutting across the fine macadamized road. And worse still, the D.

mean opposed to—"Catu," good; hence Southey's "Yguatu, or the good water," should be Ycatu, the bad river (Para, river, and Ayba, bad). Others make it a corruption of Pirahyba, which would be "Bad fish river." Others deduce it from Pira and ayba, the fishy or scaly disease—leprosy. The "bad river" would be an excellent descriptive name. It is one of the most dangerous streams in the Brazil. Many of those working on the railway lost their lives in it. A description of its course and of its colonization by the English in days

now forgotten, belong to the province of São Paulo.

Generally it is supposed in the Tupy or Lingoa Geral that Pará means a river—Paraná, the sea. If there be any distinction between the words, the reverse is the case.

* Properly a post where, in former times, passports were visited and duties were taken.

† The name is equivalent to our Delta, to the Doab of India, and to the Rineon of Spanish America.

Pedro II. proposes to run down the Parahyba River some thirty-eight miles to Porto Novo da Cunha. A glance at the map will prove to the veriest tyro that the railway should be driven directly northwards to the head waters of the great Rio de São Francisco. But as usual the line is a party and a political question. Why not then trim—make the main trunk go north, and the branch eastward?

Entre Rios* declines to 610 feet above the sea-level; the air is bad, hot and damp, breeding fevers like grubs; the water is worse. A hotel, therefore, will kill as well as keep the keeper. Hereabouts the once luxuriant valley is “cleaned out” for coffee, and must be treated with cotton and the plough. The sluice-like rains following the annual fires have swept away the carboniferous humus from the cleared round hill-tops into the narrow swampy bottoms, which are too cold for cultivation; every stream is a sewer of liquid manure, coursing to the Atlantic, and the superficial soil is that of a brickfield. Here too the land suffers from two especial curses,—the large proprietor, and from the agricultural system bequeathed by the aborigines, or from Inner Africa, and perpetuated by the slovenly methods of culture everywhere necessary when slave labour is employed. In the Brazil as in Russia and in the Southern States of the Union, where vast plantations must be merely skimmed, virgin soil forms a considerable item in the real value of landed property; the want of manure and the necessity of fallows admit only half of the whole estate—sometimes hardly even a tenth—to annual cultivation. This evil must be mitigated before the country can be colonized or greatly improved, but it is not easy to suggest a measure without the evils of “disappropriation.”†

“Serraria,” our next station, begins the ascent, and the road wisely as usual hugs the margin of the Parahybuna River.‡ This

* Below Entre Rios, and sixteen miles above the Porto Novo da Cunha, are rapids which fall about 120 feet in two miles. Where they end the Sapucaia streamlet enters the left bank, and opposite it is an islet rising some five feet above low water. Here agates and bloodstones have been found exactly resembling the formations which will be described in the São Francisco River.

† A Brazilian friend writes to me—“The iniquitous law of 1823, which put a stop to land concessions, caused substititious occu-

pation to take the place of lawful titles. Thus the best lands were worked out and ruined.”

‡ Luccock (p. 407) says, “it may probably be from the dark colour of the stones that the river derives its name, if it be written Parabúna; or if Parahybúna be the proper mode, from the deep tinge of the water.” Caldcleugh (ii. 200) translates it Para, river, and ibuna, black. Scholars make it a corruption of Parayuna, a river rolling black waves—at once a picturesque and remarkably correct description.

eastern drain of the Mantiqueira, or Trans-maritime Range, is a broad shallow stream of flavous hue, much resembling the Piabanha when we last saw it. The "Sawery" is important to the Company, as it taps the coffee districts of Ubá and Mar de Hespanha.

The "Union and Industry," white and glaring, sweeps along the tumbling river, which has cut deep irregular channels in the dark sunburnt rock. On both sides are layers of deep red clay, with imbedded boulders and masses of undecomposed feldspar, covered with a dense wood of evergreens, that winter when, and only when, they please. We now pass through the Serra das Abóboras, or "Pumkin Range," and our attention is drawn to a local lion, the Pedra da Fortaleza.* This "Montagne Pelée," a giant amongst its colossal race, is a block, apparently single, of chocolate-coloured gneiss, springing 500 feet from the river gully, where the stream makes an elbow; we run under a vertical wall, 100 yards high, which gathers up the sunbeams, and which radiates them like a furnace. Its grim brown buttress, thinly bristling, where touched by weathering, with large Bromelias, which looked like bits of grass, suggested to my wife the idea of a church, and mere specks upon the airy summit denoted its capping of tall forest. As we wind panting round the base, with the canoe-less river on our right, we detect a russet-coated capyvara or water-hog, basking in the sun, and calmly prospecting the unclean stream.† Hawks and vultures

* Castelnau gives the total height 150 metres, with a vertical wall of 100 metres. He adds, "aucune plante ne poussait sur cette vaste surface," whereas the steepest walls are tufted over with air-plants.

It would be interesting to examine these rocks, which may belong to the ancient sedimentary strata, metamorphosed by heat to highly crystalline substances, known as the Laurentian, and the most ancient known on the North American continent. The "dawn-animal of Canada" has not yet been discovered in the Brazil; on the other hand, it has not yet been sought for.

† The Hydrochaerus Capybára, or Cavia Capyvara (Linn.). The "Indian" name is as usual pretty and picturesque. "Capiuara," or "Capivara," means the "grass eater," not as the T. D. says, "qui vive entre o capim." The origin is "Caapim," or "Capyi," corrupted to "Capim," the common Brazilian word for "green meat,"

whence "Capinar," to "cut grass," and "G-u-ára," "an eater," composed of "g," relative "u," "uu," or "vu," "to eat," and "ára," the verbal desinence which curiously resembles the Hindostani "wala." Hence the Argentine name "Capiguára" (Southey, i. 137) is more correct than the Brazilian: the Spanish-Americans generally name it Capincho or Carpincho, and travellers corrupt it to Cabiais and Chiguiré. I do not know why St. Hil. III. i. 181, writes "Capimvara," it is certainly not so pronounced. M. H. A. Weddell (Castelnau, vol. vi. 348) informs us, "Le vrai nom de cet animal en Guarani est Capuquã, mot qui signifie 'habitant des prés.'" In the interior, as will appear, the people confound it with the Caitetú, or Tagassú, the peccari (Dicotylos labiatus, not the torquatus). The wild men used to wear its teeth as ornaments.

This rodent equals in size a half-grown

sought coolth in the upper æther, the kingfisher flitted over the water, ducks and dabchicks sported in the smooth reaches, wild pigeons whirred past us, small ground-doves ran along the road, and thrushes, black and brown, balanced themselves upon the spray, silent all, doubtless thinking "*il fait trop chaud.*" The "bush" looked a likely place for game; we were told, however, that the ounce remains, whilst the deer has been killed off.

The Parahybuna now ignores gold working; its once eminently auriferous sands were dredged for the precious metal and for the white, pink, and wine-yellow topazes, once a branch of provincial industry and now completely abandoned. The red ferruginous soil and the rusty quartz probably still contain gold; but the surface deposits have been exhausted. In Colonial days the Government, *mirabile dictu!* interdicted mining upon this streamlet lest the market value of the ore might be greatly reduced through the habitable world. I heard the same expressions used in London when California proved to be the El Dorado. Yet, as the old searcher said, "the night has no eyes," and the gold disappeared despite orders, and without affecting the globe's exchange.

The large Parahybuna Station shows us the Register Bridge, where duties are still taken upon imports into the Province of Minas Geraes. In 1825 the tax was 3\$640, or a little more than 17*s.* per cart; in 1867 it had risen to 20\$000, then about 2*l.* Thus the Province pays a compound impost, on the seaboard and

porcker: it is an ugly half-finished brute, somewhat like an overgrown Guinea-pig (called "Guinea," because it is Brazilian). The muzzle is bluff, and the jaw very deep, like that of a fatted hog; it swims with the square head carried high, like the hippopotamus, and it is said to bear its young on its back, as that animal does. The grunt, not "bray," is a kind of ugh! ugh! It is gregarious, living in packs of 10 to 60, and in old legends the chief was mounted by a pigmy demon, called Caápóra, or "forest dweller." When rendered shy by hunting, the Capyvara never quits the water except to bask in the sun; in captivity it thrives, but its habits are filthy and ultra-porcine. In Spanish America it is eaten, and M. Isabelle declares, with many others, that the flesh is not bad, after being placed for eighteen hours in running

water. The Brazilians use its leather, rarely its meat. Humboldt (*Voyage aux Régions équatoriales du Nouveau Continent*, vol. ii. 217), found troops of 60 to 100, and believes that these graminivores eat fish. The Capivara appears in Brazilian poetry: thus writes in his "Parabolas," Sr. José Joaquim Corrêa de Alueida (*Parabolas*, 114)—

Assim procede o politico
Que os principios não extrema;
Calculadamente segue
Da Capivara o systema.

Thus proceeds the politician,
Where principles go not too far;
He right studiously pursues the
System of the Capivár.

at its frontier; and the evil is little lessened by double loading each wheeled vehicle at the Rio de Janeiro side, and by a re-distribution of weight after settling the dues upon Minas ground. Every political economist must condemn this outlandish system of inland douanes. It keeps up the old Colonial habit of placing barriers between provinces, and it interferes with commerce by holding out premiums to bribery and contraband traffic. Many years ago it has been proposed to abate this nuisance.* But it is easier to advocate the suppression of the tolls than to show whence the equivalent in coin is to come.

This bridge has ever been an eye-sore. In 1842, when Minas and her parent, São Paulo, were "up," or "out," the officer in charge burned it down to prevent the advance of loyalist troops, and in 1843 Castelnau found it unrepaired. It is now composed of new timbers supported by old stone piers and abutments, and no longer roofed over. A little beyond it, a tattered hut marks the scene of another revolutionary affair: this Rocinha † da Negra, or "Little Clearing of the Negress," belongs, at present, to the Conselheiro Pedro de Alcantara de Cirqueira Leite. On the left is the Barra, or mouth of the Rio Preto, ‡ the southern frontier-limit of Minas. Across this western in-

* St. Hil. III. i. 47.

† Rossinho da Negra (Mr. Walsh). Here I must trouble the reader with a few necessary explanations.

The Rôça, or Roçado, in the Brazil, is a *défriché*, a clearing for agricultural purposes; generally, as in Africa, at a little distance from the farm house, or village: sometimes it has, often it has not, a thatched shed to shelter the day-labourers. In places "Rocinha" may be translated "country house in the suburbs." The *Sítio* is a *bonâ fide* farm with messuages. The *chácara*, or *cháçra*, is a word borrowed from the Tupy: the indigenes applied it to their wretched huts, and in Peru "charayoc" means "Lord of the Field:" the South Americans transferred it to their pretty villas and country houses. Mr. William Bollaert (*Ant. of Peru, &c.*, p. 67), defines it to mean in the Quichua tongue "estates, farms, plantations." Mr. Clements Markham (*Quichua Gram. & Dict.* sub voce), translates it by "Quinta" (a house and grounds), so called because the tenant paid one-fifth to the proprietor. The *Fazênda* is the Spanish *Hacienda*, the plantation of our tropical colonies, including

the ground and the buildings. The proprietor is entitled, "Fazendeiro," and the class here represents one of the landed county families of England, or the planters of the West Indies. In the Northern Provinces of the Empire, the *Fazenda* is called *Engenho* (Southey's *Ingenio* is Spanish), especially when it is a sugar plantation, and the owner is *Senhor de Engenho*, one of the local aristocracy, and not to be confounded, unless you want shooting, with the *lavrador* or farmer. The *Engenhoca* is a small *Engenho*.

‡ Caldwell (ii. 200) confounds the *Parahybuna* with the Rio Preto, which he says is a "mere translation of the Indian word *Paraibuna*." It is the Portuguese equivalent of *Una* (anciently *Huna*), "Blackwater River," properly *Yg-una*, softened to *Y'-una*. The *Y*, or *Yg*, meaning water, is omitted and supplied by *Rio Una*. These black, or rather deep brown, coffee-coloured streams, are always universal on the seaboard, but comparatively rare in the interior: the tinge is evidently due to decomposed vegetation, and often under the black sediment we find the snowy sand of the bed.

fluent lay the old road from Rio de Janeiro *viâ* Rodeio, Vasouras and Valença, into Southern Minas.

Further on, to the right, is "Rancheria," a village hardly ten years old. The normal church is at the head of the square, the normal big house is at the bottom, and the normal fountain is in the centre: whence the saying—

"The chafariz
John Anthony and the matriz,"*

which described the constituents of these settlements. Around the *grande place* are Chácaras and dwelling houses, used by the rich planters on Sundays and fêtes: during the rest of the year they are shut up. There are half-a-dozen Vendas—onde não vendem nada.† As usual in the Brazil, the Cemetery occupies a conspicuous upland, and the dwellings of the dead are far better situated than those of the living. Also certain offices which with us mostly conceal themselves in a shame-faced way, here stand out solitary and eye-catching.

About "Rancharia"‡ the land is modified by its distance from the Serra. The opulent water supply of the maritime heights disappears, the streams shrink, the ascents are longer and less abrupt, the rich red clayey soil of the Rio de Janeiro Province further south, now alternates with light-coloured loams, far drier, dustier, and, as in Minas generally, much more porous and friable. The "Matas Negras," those luxuriant dark jungles, have made way for a yellow-green grass, and near the stream for bamboo-tufts, less magnificent than before. Travellers have found garnets imbedded in the underlying gneiss; the stone is common as worthless.

* Chafariz is corrupted Mauro-Arabic (شكاريج Shakárij) and the word is ridiculed by the Spaniards, who prefer the Latin "fuente." The Matriz is the parish church, with filial chapels under it.

† "A vending-place without vent." The word Venda will be explained in a future page.

‡ The old Brazilians used to apply the word Rancharia, "Ranchery," or collection of sheds, to the huts and wigwams of the aboriginal heathen villages. Prince Max (iii. 151), has by misprint Ranchario (rancharios ou villages de Camacans, iii. 34),

and makes it synonymous—which it is not—with Aldeã, or Aldeia. The latter is derived from the Arabic الرأوة (El-dáwat); in Portugal and in Portuguese Hindostan it means any village. St. Hil. III. i. 5, tells us that in the Brazil it is applied exclusively to a settlement of catechized natives, who are said to be "Mansos," tame; or Aldeados, "villaged." This might have been the case in his days, the word is not so exclusively used now. Thus it was similar to the "Reduction" of Spanish South America, especially when it could boast of a missionary.

The Capella de Matthias Barbosa, a hill chapel on the right, announces Mathias Station, unquwhile Registro Velho. It was in Colonial days the principal "contagem" where toll was taken, and even in 1801 the dues were called Quintos, (Royal) Fifths (of gold). Smuggling was then to the "miner" what robbery was to the ingenuous youth of Sparta. The Superintendent and his guard, with spies all over the country, kept a sharp look out for those who had not before their eyes the fear of jail or maritime Africa. The contrabandist stored his valuables in horse-whips and gun-stocks, in his provision of beans, and in the stuffing of his pack-saddles. Foreigners dreaded the ordeal. Luccock called the Superintendent "his Lordship," and Caldecleugh (ii. 202) tells the sad tale of what happened to a feminine votary of impromptu free trade. Here, for some time, lived my friend Dr. G——, whose successful practice in treating psora deserves notice. The patient, when a slave, was rolled in mud, and solemnly sundried into the necessity of bathing: to the "lady of fashion" the same receipt was applied with Quixotic gravity in the shape of viscid oil, which had the same effect.

Then came heavy inclines and a steep hill, sparkling with wild fuchsia and bright with lilies, parasitic plants, and a profusion of unplanted Maracujas, or Passion-flowers,* one of the gifts of the New to the Old World. Far below us the Parahybuna brawled down its apology for a bed. Houses and fields became more frequent, and the curse of great proprietors is no longer upon the land.† We changed mules for the last time at the Ponte do Americano, a bridge with solid timber girders, and we ran at a hand gallop up the river valley, which now bulges out into sites for settlements. A mortuary chapel in a new wall-less cemetery on the left, was for once a grateful spectacle, and ere the sun set, we rounded a corner, and sighted Juiz de Fóra.

The station is at the northern or further end, distant some two kilometres of wild bush, which clusters thickly round the city. We all stared, even when *blazés* by twelve hours of kaleidoscopic travel, to see a well-gravelled footway, with posts and wheeltires for rails, in front of a carefully trimmed quickset hedge

* *Passiflora* (*incarnata*?) without perfume. The System enumerates ten wild species.

† Their effect is that which has been in France, which was in the Southern States

of the Union, and which is in Great Britain. When will the political economist duly appreciate the benefit derived from the subdivision of land?

that protected, not a neat park, but an undrained swamp. Behind it, on a dwarf rise, with pretty ground below, was a villa with a squat square tower, which looked as if brought bodily from Hammersmith. At last, dismounting with stiffened knees, we were led by Mr. Morritt to the "châlet," a cottage built in curious proportions of brick and wood, uncompromising materials. In due time every comfort appeared, and with tobacco and chat, assisted by Messrs. Swan and Audemar, C.C. E.E., we much enjoyed our first evening in Minas Geraes. And the sound sleep in the light, cool, pure air was the properest end of a coaching day.

CHAPTER IV.

AT JUIZ DE FÓRA.

And down thy slopes, romantic Ashburn, glides
The Derby dilly carrying six insides.

Byron?

THE proper style and title of Juiz de Fóra is "Cidade de Santo Antonio de Paralybuna," but a colonial justice of the peace in foreign parts, an official now obsolete,* having been sent there in forgotten years, it will ever be known to the people by its trivial name. Mawe (1809) speaks of it as a Fazenda, calling it "Juiz de Fuera." Luccock (1817) makes it contain a "small chapel and a few poor houses." In 1825 it was still a "Povoação," a mere institution. In 1850 it was promoted to the rank of "Freguezia" and "Villa," parish and township. In 1856 it advanced to cityship, and in 1864 its municipality numbered 23,916 souls, including 1993 voters and 33 electors. Such is progress in the Brazil, where the situation is favourable and—*nota benè*—where communications are opened.

The settlement consists of three distinct parts, "Santo Antonio," the city proper; the station of the Company "Union and Industry;" and the German colony, "D. Pedro Segundo." The situation is good, 2000 feet above sea-level. On the east is the winding river-plain. Westward towers a forested height, commanding a view of the "Fortaleza" Rock, and the mountains of Petropolis. It is called Alto do Imperador, after the Imperial visit, and a fair path winds up it. From the lower levels of this block a white thread of cascade, like the crystal waterfall in an old Geneva clock of ormulu, hideous mixture! trends towards the main drain. The German colony contained about 1000 souls in

* The Juiz de Fóra, according to Koster (i. chap. 4), was named by the Supreme Government for three years, and appeal

from his decisions was made to the Ouvidor or Auditor Judge, another dignity now obsolete.

whitewashed huts, and the inmates appeared poor and discontented. In June, 1867, the Practical Agricultural School* seemed in no hurry to be finished. I have since that time been informed that the establishment has been completed, that stock has been imported, and that all is in the finest working order.

The station where we lodged prides itself on having nothing to do with the "old town." It contains, besides the chateau on the hill and the châlet, a chapel, two or three tolerable houses, a small inn and stables, negro quarters, and huge stores where the salt and coffee are lodged.

The city is the usual mixture of misery and splendour. Minas, it must be remembered, is one of the three provinces not directly colonized from Portugal: São Paulo is her progenitor, and the son cannot yet boast of being better than the sire. Juiz de Fôra is a single dusty or muddy street, or rather road, across which palms are planted in pairs. Its sole merit is its breadth, and when tramways shall be introduced by some Brazilian "Train," this good disposition will be recognised. The trottoir is a jumpery, and the stranger hopping over the pavement seems to be practising "bog-trotting." The dwellings are low and poor, mostly "door and window" † as the phrase is. Amongst them, however, are large and roomy town houses, with gilt pineapples on the roof, glass balls on the French balconies, fantastic water-spouts, pig-tailed corners, birds of tile and mortar disposed along the ridges, and all the architectural freaks of Rio de Janeiro. Here the wealthy planters gather together; during the Saturday evening we saw large parties of friends and families, men, women, and children; negroes, negresses, and negrets, coming in to church. Not a little play is done on these occasions: there are men who gamble like Poles and Russians—Rooshuns, as they were called at the Old Cocoa Tree—and the year's profits from coffee and cotton are not unfrequently dropped at Monte or Voltarete. In Paris Baccarat does it.

Very mean are the public buildings. The prison would not

* Paragraph 4, condition 2 of the contract dated Oct. 29, 1864, insisted upon the establishment of this "Escola pratica de Agricultura," by the "Union and Industry Company." These sensible institutions are gradually extending along Eastern Brazil, and one of them will do more good than all the colleges which annually turn

out upon the world a hungry swarm of young "Doctors," LL.Ds. They will be followed, and it is to be hoped soon, by Schools of Mines; at present the sons of the Gold and Diamond Empire must go to Europe for study.

† "Porta e janella," meaning a ground floor with a single door and window.

hold a London housebreaker for a quarter of an hour. The *Colectoría*, into which the provincial revenue is paid, looks small. The *Matriz* of Santo Antonio, at the bottom of a dwarf square, is in tolerable order, but the chapel on the hill is towerless and in tumble-down condition. Here we see for the first time the tall black cross of Minas, introduced probably by the Italian missionaries, and recalling to mind Norman France; it is garnished with all the instruments of the Passion—ladder, spear, sponge, crown of thorns, hammer, nails, pincers, and a peculiarly wooden cock.

The day after our arrival, Sunday, was one of absolute rest. The station boasts of a neat chapel, unusually clean and free from tawdry ornament. The inside has a plain altar and benches of polished wood, a picture of the Assumption, and three candles on each side of a silver crucifix. There is no squatting on the floor, which is, moreover, closed to dogs, and does not require spittoons. Expectoration, I may observe, is a popular habit in the Brazil as in the United States. Most men do it instinctively: some, as they whistle, for want of thought; others, because they consider it sanitary, think thereby to preserve a spare habit of body, or hold it to promote appetite or drinketite. My conclusion is that spitting is natural, so to speak, and refraining from it is artificial, a habit bred by waxed parquets and pretty carpets.

The most agreeable part of the day was spent in the *château* garden and grounds. I had before met the owner, *Commendador* Mariano Procopio Ferreira Lage; during my second visit he was once more in Europe. In 1853 he organised the *União and Indústria Company*, of which he is still the hard-working chairman; he made *Juiz de Fóra* a city, the chapel was arranged by him, the *châlet* was his property, and he had laid out an arboretum and orchard upon what was twelve years ago a bog on the right bank of the *Parahybuna*.

Our fastidious English taste could find no fault in house or grounds, except that they were a little fantastic, the contrast with Nature was somewhat too violent—an Italian villa-garden in a virgin forest is startling. The *château*, which cost 30,000*l.* or 40,000*l.*, has too much colour and too many medallions; behind it, too, there is an ugly bridge leading to a prim summer-house, both of cast iron, and the former painfully like a viaduct. The little lake, with bamboo-tufted islets, dwarf Chinese bridges, and paddled boat, worked by negroes instead of steam; the “Grotto

of the Princesses," the grotesque seats and arbours, and the rustic figures of wood, are a trifle too artificial, and the Ema* and stags, not pacing over the park, but caged along with monkeys and silver pheasants, suggesting a menagerie. The European and tropical plants, however, were magnificent, and we measured an arum-leaf 5 feet 4 inches long. What a contrast to its English representative, the little Arum maculatum, or cuckoo plant, whose berries poison small children!

We wandered about the orangery, which was innocent of glass, and found out the favourite trees; † we lay for hours upon the grass eating the Tangerines, enjoying the perfumed shade of the myrtles, and admiring the young Wellingtonias and screw-pines. Mr. Swan related to us the grand reception given by the Commendador to Professor Agassiz, the man of whom prophetic Spenser surely wrote:—

O what an endless task has he in hand,
Who'd count the sea's abundant progeny,
Whose fruitful seed far passeth that on land.

When surfeited with the view of the waterfall and the "Emperor's Height," we drove to the city, passing *en route* the Hotel Gratidão, by which probably no guest was ever rendered "truly thankful." Juiz de Fóra was in gorgeous array, this being the festival of its Padroeiro or patron saint, Santo Antonio, known to Europe chiefly in connection with pigs. Here it is his duty to find husbands for young women, and if he does not he is slapped

* The South American or three-toed Ostrich (*Rhea americana*). It weighs from fifty to sixty pounds, and is thus about one-third smaller than the two-toed African, that largest of known birds, and it wears a dull grey, half-mourning dress, which has been till lately neglected by the trade. In the province of Rio Grande the word "Avestrus," properly the African ostrich, is used. "Ema" is a corruption of the Arabic Neámah (نعامة), yet even the accurate Southey (vol. i., chap. 5, p. 129) and Gardner, to say nothing of the vulgar herd, have corrupted it to "Emu." The aborigines of the Brazil called it "Nhandú" or "Nhundú." According to Prince Max. (iii. 12), the Brazilians also know it as "Touyou," and Southey adds, "Churi" (l., 8, 253). I have not heard either of these words, which are pure Guarani.

† I know no oranges better than the

Brazilian. The tree, however, is very uncertain, and the same shoots planted in the same soil produce a very different fruit. Each Province has its own, as, to quote no others, the Selectas of Rio de Janeiro and the Bahian Embigudas, which ladies call the "Naval" orange. The most common is the Laranja da China, which extends nearly along the coast and far into the interior. We shall pass through places on the Rio de São Francisco where it will not thrive. Pizarro mentions two sub-varieties of this Chinese orange, one of redder tinge, outside and inside, than the other. São Paulo is remarkable for its "Tangerinas," a name popularly derived from Tangiers; they resemble the small mandarins of China, but they are not so delicate. There are two varieties, the pequenas and the grandes, and Pizarro distinguishes three sub-varieties, which he calls, "da China, da India, and da Terra, or Boceta."

and ducked in the well, and made to sleep in the chill night air. The peal of bells was well-nigh worn out by hard hammering. The Matriz was a Black Hole of worshippers, the flower of the flock being in the tribunes and prodigal of smiles to the couthless strangers. "The son of the quarter," says the Arabic proverb, "filleth not the eye."

At Juiz de Fóra I met the Commendador Henrique Guilherme Fernando Halfeld, of whom more in the next volume. He gave me some information about the Rio de São Francisco, and told me when taking leave of us that he, aged seventy-two, was about to marry a young person of sixteen. May the result be satisfactory!

CHAPTER V.

FROM JUIZ DE FÓRA TO BARBACENA.*

“À partir de Juiz de Fóra on ne trouve plus qu’un chemin inégal, aux pentes inadmissibles, dans lequel, pendant la saison des pluies, on peut à peine circuler à cheval, et avec la condition de mettre bientôt son animal hors de service.”

M. Liais.

THE next day (Monday, June 17, 1867) witnessed the break-up of a pleasant party, and our farewell to “comforts” for a season. Mr. L’pool determined to accompany us northwards, Major and Mr. Newdigate with Mr. Morrith tend to the south. At noon we shall be separated by a century of miles, something of a consideration in the Brazil, where men move slowly. We are also to lose Sr. Francisco Alves Malvero, the cashier of the “Union and Industry Company,” who, on his sole responsibility and with true New-World go-a-head liberality, had franked us to Barbacena.

At 6 A.M. on a raw, dark morning, the two coaches, duly packed, stood side by side fronting opposite ways, and ready to start at the same moment. Presently Godfrey, a stout young German, ex-sailor, from the then jeopardied Duchy of Luxemburg, handled the ribbons, and with a blast of the horn and waved hats we dashed at the way. Our light, strong mail, “O Barbacenense,” was full. The insides were a Brazilian lady with two black girls, the normal two black babies, plus an Austrian ex-lieutenant, married and settled in the interior; the

* The stages are approximately :—

	miles.	h.	m.
1. Juiz de Fóra to Saudade	6	0	35
2. Saudade to Estiva	10	0	55
3. Estiva to Chapéo d’Uvas	4	0	45
4. Chapéo d’Uvas to Pedro Alves	10	1	25
5. Pedro Alves to João Gomes	4	0	30
6. João Gomes to José Roberto	9	1	15
7. José Roberto to Nascimento Novo	8	2	15
8. Nascimento Novo to Registro	8	0	50
9. Registro to Barbacena	4	0	35

Total, 63 miles in 9 hours and 5 minutes; the regulation speed is twelve miles per hour upon the good parts of the road, which are few and far between.

outsides behind were our two negro servants and a large collection of small baggage. We sat in the rear of the driver and the guard, with my wife packed between us in case of a "spill."

The first lot was poor land, and the line lay up the riverine plain, at times cutting across a high hill-spur that projected into the valley. The early world looked pale white with hoar frost; the effect arose from the velvety down of the well-known gramen, *Capim Gordura*,* the "grass of fatness," so called because the blades feel greasy and viscous. It was purple with flower and seed, and at once suggested stock breeding, but it will dry up in a few weeks and become poor forage; then the troop mules will suffer, and devour all manner of trash. Botanists rank it amongst the plants which follow the footsteps of man; it covers deserted roads, it occupies the ground when freshly cleared of virgin forest, and it takes possession of fields allowed to lie fallow for the five years that usually follow two successive harvests. According to St. Hilaire the "ambitieuse graminée" is not indigenous, and the people told him that it was a present from the Spanish colonies. They have now forgotten its foreign origin.

The land is rising rapidly, the receding woods become less dense, and the delicate "cabbage palms" †, with other growths of the Maritime Range, disappear. Air and soil are too cold for coffee and sugar, except a trifle raised for home consumption in the Quintal or sheltered and often manured courtyard. Rice and maize, however, are good; vegetables and tobacco flourish; every hut has its floor for drying beans; buckwheat, rye, and hops would doubtless everywhere be at home except upon the bald polls of the disforested hills; and, in the bottom lands, cotton might be grown to advantage. So rich is the Brazilian soil, even in its poorer phases.

* *Tristegis glutinosa*, or *Melinis minutifolia* (Palis.). It is also called *Capim Catinga* or of fetor, its peculiar odour being supposed to resemble that of the negro. I did not find it unpleasant. St. Hilaire, who has given an ample account of the grass (I. i. 195; III. i. 223—5, and in III. ii. 29, 31, 54, and 175), makes *Capim Catinguero* the same as *Capim Gordura* and the *Capim Melado* ("honed grass") of Rio de Janeiro and S. Paulo. He found it called *Capim de Frei Luiz*, the religious who introduced it with a view of benefiting the country; his name is now forgotten. According to Martius,

Capi-Catinga is one of the *Cyperaceæ*, the sedges. Some Brazilians hold *Capim Catinga* to be the young *Capim Gordura*. Gardner (475-7) observed that north of south latitude 17° it grows near houses only. I see no reason why this grass should not make excellent hay.

† *Euterpe edulis*, in *Tupy Assahi* or *Assã*. The cylindrical spike or footstalk, long, green, and succulent, which contains the rudiments of future leaves, is the cabbage. Many palms yield this edible embryo; in the Brazil the *Euterpe* is the best.

We miss the neat Swiss Gothic stations with their fancy gables and iron roofs painted red. At Saudade (why call it "Desiderium?") we find an old tiled ranch, or shed, with nothing to recommend it but a semicircle of fine coqueiros.* Presently we crossed for the last time the Parahybuna River, whose valley ran up to the left. Though the soil did not improve, the views did: there were pretty bits of "home scenery," grassy hills with graceful rounded curves, and their groves of palm and other trees.

Animal life now became more conspicuous. The Urubú vulture spreads its wings to the rising sun; the Caracará buzzard (*Falco crotophagus* or *F. degener* or *F. brasiliensis*, the Chima-chima of Azara) perched like the Indian Maina upon the backs of grazing kine, or trotted after them, pecking at the ticks; this singular bird of prey, revered by the Guaycurú Indians, was evidently rendering an interested service. "Maria preta"—black Maria—a kind of widow finch, in sable and snow, flashed across the path from holt to holt. The Japé, or hang-nest, and the brilliant violet oriole (*Oriolus violaceus*) trotted about, whilst the merlo or black-bird (*Turdus brasiliensis*) and the Sabiá thrush (*Turdus rufiventris*), that Brazilian nightingale of the flutey song, chanted their matins with a will. Troops of the glancing purple-green, black, and grey-white "anum," † chattering like starlings, shunned the trees as is their wont, balancing themselves on the elastic shrub tops.

The Cupim-nests, ‡ or termitaria, are lumpy pillars and pyramids of clay, yellow or drab coloured, as may be the subsoil, and sometimes 5 or 6 feet high. They are scattered like tombstones, occasionally in pairs or trios, as if a succursale had been added, often shaped suggestively to a pious Hindu: nowhere in the Brazil, however, do they constitute so conspicuous a feature, or cumber the land as in the Somali country. The mounds near the road appear to be deserted, and some suppose that the "white ants" abandon their homes when made, which is absurd. Opened

* Not "Cocociro," as Professor Agassiz has it. The *Cocos butyracea*, one of the finest palms in the Brazil, was seen throughout the interior when I visited it, till the Carnauba palm (*Copernicia cerifera*) took its place.

† In the plural anuns. The word has been much abused, turned into anuh, annù, and so forth. The black anum is the *Crotophaga ani* (Prince Max). The white is the *Cuculus Guira* (Linn.), or spotted cuckoo;

it is the Pirigua of Azara, and is said to have reached the coast from the Highlands. The large variety is the *Crotophaga major* (Linn.).

‡ Properly Co-pim, from co, a nest, cave, hole, and pim, to sting, a sting, dart, iron point. Hence the error of M. de Suzannet, whose bird "Coupy" is the termite: in places it builds round the tree trunks and branches clay nests which look like gigantic wens. Azara also writes Cupiy.

they suggest a mammoth hotel as Asmodeus would see it, and a few stiff blows with a pick upon the hard crust of those which seem to be in ruins, brings from their burrows a frantic swarm as the said hotel would show at the cry of fire. The Cupim does little injury to the farmer, and has foes innumerable, especially the Myothera, the prairie wood-pecker (*Picus campestris*), the toad, the lizard family, the Myrmecophaga, and the armadillo. Some travellers make the ant-house a *ménage à trois*, and the same tale is told of the prairie dog villages. It is not, however, a happy family if it be true that the toad, after eating up the ants, is eaten by a serpent, and the serpent is devoured by a Siriéma,* a bird whose tastes correspond with the African "Secretary" (*Gypoggeranus africanus*), but it wants the pens behind the ears, which made the Dutch give the latter so literary a name. Others believe that the young of the Cupim are carried off and enslaved, like West Africans, by the fierce plantation ant, † which thus represents the wicked and merciless white man. But the same tale is told of the "Quem-Quem" ant, and possibly the superstition may have arisen from the different sizes of the workers major and the workers minor.

The road, tolerably good for the Brazil, is execrable compared with the first day's line. In many places it is double or treble. These "deviations" ‡ denote muds worse than those of a Cheshire lane. The surface is now hard and caky; about December it will be cut up by the regular tramping of the "boiadas" or droves of market cattle, into a "corduroy," a gridiron of ruts and ridges, locally called *caldeiras* or "caldeirões." § These "chauldrons," horrible to Brazilian travellers, consist of raised lines, narrow, hard and slippery, divided by parallel hollows of sippy, treacly clay; in the latter mules sink to the knee or to the shoulder, their tall-heeled shoes are often lost, and at times a hoof remains behind. Old and wary beasts tread in the mud, not on the ridges, which cause dangerous falls. The cure would be deep-trenching to drain the "chauldrons," bush clearing to

* The Siriema (*Dicolophus cristatus*, Illiger; *Palamedea cristata*, Gmelin) will be repeatedly mentioned in the second volume. It is about the size of a small turkey, for which it is often mistaken; it runs like a young ostrich; it goes generally in pairs, and it builds in low trees. Its "bell-note" is not unpleasant, and it is easily tamed. Others suppose the Termitarium bird to be

a kind of owl (*Strix cucularia*, or Campos owl), which is known to lay eggs in deserted armadillo holes.

† *Alta cephalotis*. The Brazilians call it Saúba, a corruption of the Tupy "Yçauba."

‡ *Desvios*.

§ The holes made by the waves in the coast rocks also have this name.

admit the great engineers Sun and Wind, and in extreme cases laying down logs across the mud. At present the forest presses upon the roads because travellers prefer riding in the shade. It is easy for them to choose the cool of the day; moreover, I never felt the least inconvenience, even from a "chimney-pot," in the heat of noon; and, finally, the Brazil, like Western Africa—probably for the same reason—is remarkably free from sunstroke. But in this stage of society, to "work for others"* stultifies a man exceedingly, and the real Portuguese of the old school would rather want than do anything incidentally likely to supply the wants of his neighbours.

We are upon the highway between the metropolis of the Empire and the Capital of the Gold and Diamond Province. In the rainy season, from November to April, the sloughs take off the coach. The annual cost of repair is 300\$000 per league. The zelador or cantonnier, however, expects everywhere in the Brazil to draw pay and to do nothing, save perchance to vote. He is equal to any amount of "drawing," but *do* he will not. Upon this whole line, where there is not a single rood that does not urgently require a large gang, we found a single negro lad scratching his head, and sometimes tickling the ground with a hoe.

Throughout the Empire these lines of communications are divided into Imperial, Provincial, Municipal, and between three such stools accidents are ever happening. When a route is to be made the concession is granted sometimes in payment for political services to the applicant, who lays it out well or ill, as the case may be. It is then thrown open to the public, and is left to be spoiled. When worn down to the bone, and converted into rock-ladders, rut-systems, and quagmire-holes, where beasts are bogged and die—then, possibly, may be built alongside of the old road a new line, whose fate, in course of time, shall inevitably be the same. Often my Brazilian friends have remarked that men who travel by such weary ways need no future process of punishment.

Of course, after living three years in the Brazil, I know the difficulties of road-making. The pasty red clay which here as in Africa clothes Earth's skeleton demands metalling if the line is to

* *Trabalhar para os outros.* Every school in the Empire should put up the motto of the Free Cantons—

"Each for all, and all for each;"

and borrow a few Gaelic maxims, "One and all," "Union is strength," "I care for everybody, and I hope everybody cares for me."

last, and macadamizing is an expensive process, requiring constant repairs. The rivers and brooks are not those of a "well-regulated country" like England: they shrink to nothing, they swell into immense torrents, and the cost of bridging and controlling them is no trifle. Popular opinion, by no means thoroughly awake to the importance of highways and byways, is another obstacle; many think that a good road is that which enables you to ride your mule comfortably. Their fathers have done without mending their ways, and straightening their paths—ergo, so can they, et cetera.

These pages, however, will show that in this Empire, about to be so mighty and magnificent, communication signifies civilization, prosperity, progress—everything. It is more important to national welfare even than the school or the newspaper, for these will follow where that precedes. And travellers who wish well to the land must ever harp, even to surfeit, upon this one string.

After Saudade the country waxes lone. Besides a few roadside shop-sheds, which sell wet and dry goods, beans, flour, and the baldest necessaries of life, we find only two manor-houses belonging to a landowner known as "O Mirandão" and his son-in-law. The monotonous thud and creak of the "Monjolo,"* the only labour-saving machine bequeathed by Portugal to her big daughter, proclaims the rudeness of agriculture.† A heavy hill of the slippery clay, with its cuttings of purple, marbled or mauve-coloured ochreish earth, called in São Paulo "Taguá," delays the pace; and Godfrey must often "skid" and employ the patent break as we descend.

The next station, "Chapéu d'Uvas," is so called from some generous old vineyarder who allowed the thirsty to fill their hats with his grapes. A certain modern traveller related that somewhere between this place and Curral Novo, as well as in other wooded parts of the Brazil, there is a pigmy race about three feet high, white as Europeans, and with hairless bodies. This suggests the Wabilikimo or "Two-cubit Men," gravely

* Or Monjólo. Mawe terms it Pre-guiça (the sloth), and gives a drawing of this rough water-mill, which is described by every traveller. Caldeleugh calls it Jogo, a game. St. Hil. (III. i. 121, &c.) erroneously writes the word "Manjola." It appears in Brazilian poetry, e.g. the *Parabolas* (No. 113, Wolf) of José Joaquim Corrêa de Almeida—

"Deputado vil comparsa
Representou de Monjolo."

"The Deputy, a vile compare,
Like the Monjolo beat the air."

† So in 1633, the first saw-mill built on the Thames, opposite Durham Yard, was taken down, "lest our labouring people should want employment."

located by the "Mombas Mission Map," within the seaboard of Zanzibar; and the reader will at once recall to mind the detailed notices of the "Obengo" dwarfs, lately brought home from Ashango-land by my indefatigable and adventurous friend, Paul du Chaillu.

Here the Caminho do Mato, the "Forest-road" from the north-east, falls into the Caminho do Campo, the "Prairie highway," which trends to the north-west. The settlement is the normal post-town," a single straggling street with a pauper chapel: it can no longer claim to be "one of the prettiest and most civilized spots seen since leaving Rio de Janeiro." It could hardly supply grain to our five beasts; the people raise enough for domestic consumption only, and travellers carry their own slender stores. The waggons were standing in the thoroughfare, and the first glance showed wayfarers from the United States. They had done what they would have done in Illinois—they had brought traps and teams, and they were lumbering on towards the setting sun.

The next stage showed us "Retiro,"* a bunch of huts tenanted by negroes, who had hoisted a black saint upon the "Tree of St. John." Here we first sighted the Mantiqueira Range, with which I had made acquaintance in São Paulo. I have something to say about this most interesting formation. It is not one line, but a collection of systems, crystalline, volcanic and sedimentary. Its southernmost wall is within sight of São Paulo, the city, forming the Serra da Cantareira, a septentrional buttress to the valley of the Tieté River. Thence it runs to the east with northing, increases greatly in importance, and presently forms the culminating point of the Brazilian Highlands. A little beyond this point—in W. long. (Rio) $1^{\circ} 20'$ —it obeys the great law of South America, and indeed of the New World generally; and, curving at an angle of 115° - 120° , it becomes a meridional range, not an east to west chain, as are mostly those of the so-called Old Hemisphere. It bisects the Province of Minas upon the line of Barbacena, Ouro Preto, and Diamantina, and it divides the Atlantic watershed, the riverine basins of the Rio Doce, the Mucury, the Jequitinhonha, and the minor systems from the

* St. Hil. (III. i. 233) translates "Retiro" by Châlet. In this part of the country it confounds with our "shooting box:" on

the Rio de São Francisco it will bear another meaning.

Western versant, draining the Paraná, Paraguay, Plata, and the Rio de São Francisco. It affects the surface almost as much as do the Andes further to the occident; it arrests the rains which flood the lands on its seaward flank; it breaks up the ground, and covers earth with the densest forests. The inland slopes are more regular, prairies abound, and the vegetation is chiefly gramineous, and the low woods known in the Brazil as Caatingas and Carrascos.* North of Diamantina it becomes the Serra do Grão Mogor; it then forms in Bahia the Serra das Almas and the Chapada Diamantina, or Diamantine Plateau, after which it sinks into the broken plain on the southern bank of the Rio de São Francisco. Then it extends some 860 geographical miles between S. lat. 10° and $24^{\circ} 20'$. The southern portion runs almost parallel with and distant 30 to 50 miles from the Serra do Mar or Maritime Range. About Barbacena it has already greatly diverged, and its maximum distance from the shores of the Atlantic may amount to 200 direct miles.

The culminating point of Mantiqueira and of the Brazil generally is the Itatiaiossú, a highly picturesque word, interpreted to mean the "great flamboyant rock," from the flame-like outlines of its three loftiest crests. The chief peak is placed in S. lat. $22^{\circ} 38' 45''$, and W. long. (Rio) $1^{\circ} 30'$. The "Revista Trimensal" (1861), of the Instituto Historico e Geographico Brasileiro, adopts the mean altitude of 3140 metres, or 10,300 feet. Dr. Franklin da Silva Massena has reduced the estimate to 2994 metres, and Père Germain, of the Episcopal Seminary of São Paulo, who visited it in May, 1868, increases it to 2995.† The formation is essentially volcanic, two craters and more than 200 caves have been found in it, and the explorers met with sulphur springs and large deposits of sulphur and iron pyrites.

* "Caatinga" must not be confounded with "Catinga" before mentioned. The former is derived from the Tupy "Cáa," forest, bush, leaf, grass; and "tinga," white. It admirably describes the scattered growth of dry clay or sandy plains, gnarled trees averaging 10—20 feet in height, or one-tenth of the forest-growth, and looking pale and sickly by the side of the dark virgin leafage. "Carrasco" in Portugal is a low stiff growth, and the word is supposed to be derived from *Quercus and rusceus*, "Carvalho picante," prickly oak. The Mineiros mostly apply it to a vegetation

more scattered, stunted, and ragged than the Caatinga, ranging between 3 to 6 feet, and often rich in the *Mimosa dumetorum*, a true "Carrasquente" shrub. Both allow the sun to penetrate through their thin coats, and with the assistance of dew a little grass good for pasture grows about their roots.

† The number 2994 has been adopted by that excellent Brazilian geographer, Sr. Candido Mendes de Almeida. Père Germain found the altitude of the highest habitation to be 1560 metres.

The summits are annually covered with snow, which sometimes lies for a fortnight, and the plains are fields of wild strawberries. I shall have more to say upon this subject when describing the Province of São Paulo. Suffice it now to remark that this part of the Mantiqueira is a Sanitarium, lying at the easy distance of three days' trip from Rio de Janeiro, via the D. Pedro Segundo Railway and the Valley of the Southern Parahyba.

The Abbé Cazal calls the central and symmetrical range "Serra do Mantiqueiro." Dr. Couto very properly terms it "Serra Grande;" its peaks, the Itabira, the Itambé, and the Itacolumi, not to mention the Itatiaiossú, exceed in height all others in the Empire, except those visited by Gardner in the Serra do Mar near Rio de Janeiro. The popular name which appears upon our maps, and which is being adopted by the Brazilians, is Serra do Espinhaço* or Range of the Spine-bone. This generalization is, I believe, the work of the Baron von Eschwege, who in the last generation commanded the Corps of Imperial Engineers at Ouro Preto, and who has written extensively upon the geography and mineralogy of the country. But the so-called Espinhaço is not the spine of the Brazil generally, although it may be that of Minas Geraes. A nearer approach to a true *Charpente dorsale* would be the Ranges da Mantiqueira, dos Vertentes, and da Canastra; the Mata da Corda and the great ridge to the west of the Rio de São Francisco, known to maps as the Serra da Tiririca and da Tauatinga.† North of S. lat. 11° it forks into the so-called Serra da Borborema, trending to the north-east and the Serra dos Cerôados, diverging to the north-west.

The word "Mantiqueira," also written and pronounced "Mantiguira," is still unjudged. Usually it is translated "ladroeira," robbery, and is supposed to be local patois. Some derive it from "Manta," a (woollen) "cloak," and figuratively a "trick" or "treachery." In the early half of the present

* Not "Sierra Espenhaço" (Herschel, *Physical Geography*, 292).

† Often and erroneously written "Tabatinga," which would signify literally the white wigwam, and which the Dictionaries render by "smoke." The Tupy "tauá" seems to be the same word as "taguá" or "tagoá," which Figueira translates "barro vermelho"—red argil; whilst "tinga" is white. It is a pure white, or slightly yellow kaolin, sometimes mixed with sand;

but more often pure, the degradation of felspar, and it has been mistaken by foreigners for chalk: when limestone is deficient, it is still used as whitewash. The older writers define it to be the "wunder erde" of Saxony, a hardened, argillaceous lithomarge. In 1800, a certain João Manso Pereira made, we are told, works of art from the material found at the Lagôa de Sentinella, near Rio de Janeiro.

century it was a name of fear, as Apennines and Abruzzi are even yet. Old travellers are full of legends about its banditti, and mule-troopers still shudder at the tales told around their camp-fires. The Thugs used to lasso their victims and cast the corpses, duly plundered of diamonds and gold dust, into the deepest "cañons" and ravines: there is a tradition that one of these Golgothas was discovered by a fast-growing tree which bore a saddle by way of fruit. The guard assured me that when the last road was made, treasure was found in several places. The most noted bands in late years were headed by a certain Schinderhans, "O Chefe Guimarães," a "highly respectable" Portuguese of Barbacena: about 1825 he and his familiar friend, the gipsy Pedro Hespagnol, died in jail. Another actor in the tragedy was the Padre Joaquim Arruda, a rich man and well connected in this part of the Province. The fidus Achates, who everywhere stood by his Fra Diavolo, was one Joaquim Alves Saião Beijú, properly called Cigano Beijú, or Gipsy Manioc Cake.* The Reverend "Rue" (*Ruta graveolens*?) came in 1831 to a bad end after some seven years of successful villany; aided by his gipsy, he escaped from prison, hid himself in a cave near S. José de Parahyba, and was shot down by the detachment that pursued him.

But "Mantiqueira" is now shorn of its terrors, and very beautiful are the slate-blue summits which meet our sight. At its base we find the Half-way House, "Pedro Alves," where the normal breakfast, not, alas! "blessed pullets and fat hams" awaited us. I will at once observe that neither gourmand nor gourmet should visit the South American interior, especially the Highlands of the Brazil.

Refreshed with the "quantum interpellat," such as it was, we dashed down a steep, winding hill, where Godfrey remembered a broken arm and the guard two fractured ribs. Every hollow in the road made our vehicle buck-jump like taking a brook, and the swing and sway and the heaving to and fro as we rounded the corners equalled any Brighton coach in the early days of railways. The high wind prostrates bamboos near the road, and the wicked

* The gipsies of the Brazil, who are still numerous in Minas, take their names from food, birds and beasts, trees and flowers. Koster explains "Cigano" as a corruption

of Egyptian; in fact, synonymous with "Gitano." Many English residents of long standing ignore the existence of gipsies in the Brazil.

little mules gave us the worst taste of their quality. We crossed the Rio do Pinho, one of the headwaters of the Rio das Mercês da Pomba, which feeds the Lower Parahyba, and drains the Eastern Mantiqueira. At the foot of the latter is the little countrified town "João Gomes," with palm-grown square, cross-fronted church, and Hotel da Ponte.

As we near the ascent water becomes again plentiful; here it is said to rain or to drizzle every second day. This Brazilian Westmoreland sucks dry the sea-born clouds, and does its best to make the Far West an arid waste. After sundry preliminaries of subrange and outlying buttress, we breast the slope that measures about four miles and occupies an hour. M. Liais prematurely wrote, "les ingénieurs de la Compagnie Union et Industrie ont trouvé un bon passage dans la Serra da Mantiqueira," but he confesses to not having seen it. The facing is easterly, fronting the weather, and exposed to the full force of the north-eastern and south-eastern Trades, water-logged from the Atlantic. However, the Commission lately sent under command of the late Mr. John Whittaker, C.E., has found a pass of easy gradients and without the main fault of the present seaward-fronting line.

Gneiss and granite, thickly banded with veins of clear and smoky quartz, composed the under strata. The surface was the usual rich red clay, ferruginous with degraded mica and felspar; the cuttings showed boulders and "hard heads," peeling like the coats of an onion. Greenstone blocks appeared, especially upon rising ground, but not *in situ*. When the sun shone, minute fragments of silvery mica sparkled with a wonderful glitter. Caldclough found near the summit the old red sandstone, between which and the new red, the carboniferous formations of the Brazil are, I believe, mostly found. This would argue that we are now west of the great coal formation, which has been traced with intervals between Bagé of Rio Grande do Sul (S. lat. $31^{\circ} 30'$) and the Province of Pernambuco (S. lat. $8^{\circ} 10'$)* If this be the case, the country between the Mantiqueira Range and the coast line must be explored for carbonic deposits.

The deep mud, sticky as coal tar, and engulfing our wheels to

* I do not pretend to fix the limits, the 23° in the text have already supplied specimens. M. Charles Van Lede (De la

Colonization au Brésil. Bruxelles, 1843, chap. 10) has well described the coal mines of Santa Catharina.

the hub, dismounted all the men, who tried some short cuts and suffered accordingly. As we ascended, two crystal streams gushed out of the clay scarps on our right, and had been converted into fountains by some charitable soul who probably knew what thirst is, and who pitied thirsty man and beast. At the summit we waded through a pool of slush, and the team—all the kick was now taken out of it—halted with quivering flanks, streaming skins and prone muzzles. An opportune rock slab invited us to rest and be thankful for the panorama.

We are now at the eastern culminating plateau-point of the Brazilian Highlands, and from this radiate the headwater valleys of the Parahyba do Sul, the Rio Doce, and the Paraná, which becomes the mighty Plata. Below us lay the land mapped out into an infinity of feature that ranged through the quadrant from south-east to south-west. There was the usual beautiful Brazilian perspective, tier after tier of mountain, hill, hillock, rise, and wavy horizon, whose arc was dotted with the forms familiar to Rio de Janeiro—sugar loaves, hunchbacks, topsails, and parrots'-beaks. The clothing of the earth was "Capoeira," or second-growth forest*, so old that in parts it appeared almost virginal; the colours were black-green, light-green, brown-green, blue-green, blue and azure in regular succession, whilst the cloud-patches gathering before the sun mottled the landscape with a marbling of shade—travellers from the temperates prefer this mixture of grey to the perfect glory of the day-god. On the

* As in Intertropical Africa so in the Brazil, when the virgin forest is filled, a different growth, more shrubby and of lighter colour, rather herbaceous than ligneous, takes its place. The eye soon learns to distinguish between the two, and no Brazilian farmer ever confounds them. The virgin is darker, and more gloomy; there is less undergrowth, the ground is cleaner, and the lianas are larger, more numerous and more useful. The wood that has lost its virginity is far richer in flowers and fruits, in Orchids and Bromelias. Some botanists believed that the germs were hidden for countless centuries in the soil; others that the seeds are transported by wind and the animal creation, which appears more probable. This second growth is called "Capoeira," and when old "Capoeirão," an incrementative form; Capoeirinho means that it is young. It is said that after many years the characteristic vegetation of the virgin forest re-appears;

I have no opinion to offer upon the subject.

The word "Capoeira" is derived from "Capão" (plural, "Capões"), a corrupted Tupy word. In Portugal it means a capon; in the Brazil it is derived from Caá-poam, a bush island, either on hill or plain; "Caá," a bush, and "poám" or "puam," from "apoam," subs. and adj. a globe, a ball, an island, also round, swelling. It is admirably descriptive of the feature which in classical Lusitanian is termed *ilha de mato*, *mouta* or *moita*; in French, *bouquet de bois*; and in Canadian English "*motte*." Thus "Capoeira" is opposed to *mata*, *matagal*, *mata virgem*, *mato virgem*, and in Tupy to *Caa-etê*. This would be literally the "very" or "the virgin forest," "etê" being a particle which augments and prolongs the signification of its substantive, as *Aba*, a man, *Aba-etê* a true or great man. *Caa-etê* undergoing slight alterations, as *Caethê*, *Caithê*, and so forth, is the name of many Brazilian settlements.

south-west a long high wall of light plum-colour, streaked with purple and capped with a blue-yellow sheet, which might be grass or stone, fixed the glance. This is the Serra da Ibitipóca*, a counterfort of great "Mantiqueira," trending from north-north-east to south-south-west. On its summit there is, they say, a lakelet, and in the lakelet fish. The mountain tarns are very common in the Highlands of the Brazil; they may be met with even on the blocks that rise from the Maritime lowlands.†

I pushed on, determined to spare the mules, and reached a dwarf basin, where dark mica slate and tufaceous formations announced a change of country. *Obiter*, it may be remarked that the Brazil is rich in turbaries, which have never yet been used for fuel. As the turf is mostly modern, it must go through a certain process, especially of compression; and the late Mr. Ginty, C.E., of Rio de Janeiro, took out a patent for working the beds. At this place, 4000 feet above sea level, a ragged hut protected a few roadside squatters‡ from the burning sun and the biting wind. A short slope led to the great descent. The soil was still deep black earth, decayed vegetable matter, the dust of extinct forests forming peat. In the rains it becomes a tenacious mire, in the dries a stiff cakey clay, which severely tries our trusty English coach-springs. Half-way down hill I found what suggested the wooden cart of Northumberland in the middle of the last century. It had ten yoke of oxen, and the men, armed with the usual goads, huge spur-rowels at the end of perches ten feet long, had spent the day in pricking, cursing, and lashing the lagers over the one league up the Serra.

At "José Roberto" the road became dry; we are now in a lea-land. The new mules kept up a hand gallop to "Nascimento," a pretty "venda" in a dwarf plain or hollow, bright with the greenest grass, tall waving Coqueiro palms, and the glorious mauve-pink bracts of the Bougainvillea§ (*B. brasiliensis*) which in Minas becomes a tree.

* My informant explains this to mean "here" (*iby*); "it ends" (*tipoca*). The derivation appears fanciful. "Iby" as a rule means "earth," *Iby-tira* a serra or mountain range, and *Iby-tira cua*, a valley. *Poc* means to burst.

† For instance, Itabaiana in Sirgipe, the Monserrate hills behind Santos, São Paulo, and in various mountains of Minas

which will be mentioned. We remember the Witch's Well that never dries on the granitic Brocken or Blocksberg, the highest point of the North German Hartz.

‡ "Moradores," literally dwellers.

§ The Prince Max. writes *Bugainvillea* and *Buginvillea* (i. 58). The accurate Gardner *Bugenvillea*, which mutilates not a little the name of the great circum-

After running eight miles from the Mantiqueira crest, and at the twelfth from our destination, we make the Borda do Campo or "Edge of the Prairie (ground)." A similar name and nature is found near São Paulo, the city; there, however, the Campo begins close to the Maritime Range, while here the Mantiqueira intervenes. I curiously compared first impressions: in Minas the land is more broken into deep hollows, glens, and ravines; and the "capões" or patches of forest are of superior importance. The minor characteristics I must reserve for another Chapter.

The dry season was now at its height, and the country looked faint and torpid with drowth. We caught a far sight of Barbacena, with its church-towers fretting the summit of a high dark ridge to the north, already purpling in the slanted rays of the sun. The situation at once suggested São Paulo, and we again breathed the cool, clear, light air of the Plateau, a tonic after the humid heat of the Mantiqueiran ascent. Large Fazendas lay scattered about: we were struck by the appearance of those called Campo Verde and Nascimento Novo.

Our eighth team, fine white mules for the run in, awaited us at Registro Velho. It is the first of the trio which, in colonial times, awaited the hapless wayfarer from Minas Geraes to the seaboard. The building is a large white affair of a rude wooden style; its ancient occupation is now gone, and it has found new industries. The "Gold troops" from the Anglo-Minas mines always night here, avoiding the city streets, where they lose their shoes and spend their money; the pasture, however, is execrable. The proprietor, "Capitão"* José Rodriguez da Costa, lodges travellers in his own independent way, turning them out if they grumble at high charges. Before visiting the several Companies, one marvels that they cannot combine to set up an establishment of their own. The captain, however, is trustworthy, or rather, being a wealthy man, he is much trusted.

navigator. French colonists unaccountably call the beauty Ciel de Judas, and the Brazilians Porca Rota.

* Military rank is as common in the Brazil as in the Far West of the Union before the War, or in Great Britain since the last days of the Volunteers. Rarely it refers to the Line; almost always to the National Guard. The latter, organised in Dec. 31, 1863, consisted in 1864 of 212 superior commands, and a vast cadre of

officers, with 595,454 rank and file, distributed into artillery, cavalry, infantry, and infantry of reserve. It formed, as in North America, a curious contrast with the regular army, which, till Paraguay rendered an increase necessary, numbered 1550 officers and 16,000 men, whilst the police in 18 provinces did not exceed 4467. These figures speak volumes in favour of the orderly and law-fearing character of the Brazilian people.

Here is a manufactory of cigarros,* celebrated from Minas to Rio de Janeiro. Two rooms contain the workpeople, men and women, and there is one cutter to each half-a-dozen rollers. The maize leaf is used instead of paper, a custom directly derived from the aborigines. "Après qu'ils ont cueilli le petem" (tobacco-leaf),† says De Lery of the Tupinambas (p. 200), "et, par petite poignée, pendu et fait sécher en leurs maisons, ils en prennent quatre ou cinq feuilles qu'ils enveloppent dans une autre grande feuille d'arbre en façon de cornet d'épices; mettant alors le feu par le petit bout et le mettant ainsi allumé dans leur bouche, ils en tirent de cette façon la fumée." The tobacco is strong, and the "pinch of snuff rolled up in a leaf" soon cakes and must be unrolled and rerolled before it will draw. A large bundle may be bought for a shilling, and yet the profits of the establishment are about 160*l.* per mensem. Roll-tobacco, as a rule, in the Brazil is good, and this is remarkably good.

The next stage crosses the Rio do Registro Velho, a feeder of the Rio das Mortes—the River of the Murder-Deaths.‡ We are now, therefore, in the South Brazilian basin of the Paraná, Paraguay, and Plata rivers. Turning from the main road to the right we pass the wretched little colony "José Ribeiro." A landowner of that name sold the ground to the "Union and Industry," and the latter established a settlement of Germans. The only decent house was that of the Director. And now appeared the beginning of the end in a bittock of fine smooth macadam laid down by the Company. It was like rolling over a billiard table, and we galloped up it with a will, the breath of the mid-winter evening biting our faces and feet.

It was almost dark when we entered the city of Barbacena, which looked as lively as a mighty catacomb, and we deposited

* The Portuguese cigarro is a cigarette, the cigar (a Singhalese word) being called "Charúto," whence our cheroot.

† The tobacco plant and leaf, in the Tupy tongue, is called petúm, petume, or pety. Hence the corrupted popular Brazilian word "Pitar," to smoke. It is curious that the Portuguese should apply the word which Europe has derived from the Tobago-pipe to snuff only, and reduce tobacco to the vague generic word "fumo."

‡ It is usually asserted that Brazilian tobacco contains, like that of the Havannah, only 2 per cent. of nicotine, a little more than Turkish and Syrian; whilst that of

Kentucky and Virginia averages from 5 to 6 per cent., and the produce of Lot-et-Garonne, &c., 7 per cent. As yet experiments have been made, I believe, only with that grown about Bahia. Both in São Paulo and Minas there are local varieties of the "holy herb," whose headiness suggests a far larger proportion.

† The origin of the ill-omened name will presently be explained. Mr. Walsh (ii. 235) calls the Rio do Registro Velho, "Rio das Mortes," which it is not, the lower course only being thus known. Here it was that the well-hoaxed traveller suffered his terrible comical fright about nothing.

the old lady and her innumerable parcels, with the slave girls and their *moutards*, before we could stretch our cramped legs at the Barbacenense Inn. Sr. Herculano Ferreira Paes, the owner, had unfortunately seen better days; he evinced it by giving us in perfect courtesy, sadly misplaced, not dinner but a damnable iteration of excuses. "The house was not worthy of us—we were such great personages—the town was so wretchedly poor—the people were such perfect barbarians." His sons were palpably above their work, they received every order under tacit protest, and they prospected us as their grandsires might have prospected John Mawe, who, in 1809, visited "Barbasinas."* But food came at last, and we found even the odious Spanish wine good. The sleeping rooms were small, the beds were *grabats*, the air was nipping, and the street dogs barked perniciously. Yet we slept the sleep of the just. It was a weight off one's shoulders that day of stage coaching, which had been uncommonly heavy upon the nervous collar.

* This error is unfortunately followed by that excellent geographer, M. Balbi.



HOW THE FUTURE RAILROAD WILL CROSS THE MANTIQUEIRA.

CHAPTER VI.

THE CAMPOS OR BRAZILIAN PRAIRIES.

The clouds,
The mists, the shadows, light of golden suns,
Motions of moonlight, all come hither, touch
And have an answer—hither come and shape
In language not unwelcome to sick hearts
And idle spirits. *Wordsworth.*

THE word Campo*—campus—is fitly translated Prairie. The formation, however, is not an elevated plain, like the “grass seas” of the Orinoco, the irksome steppes of Tartary, or the great flats of Russia and Poland, dead levels of lakes and morasses; nor in this parallel does it resemble the rolling uplands of Kansas and the trans-Mississippian territories. In the Oriental Brazil it is a surface of rounded summits between 300 and 600 feet high, generally of ungentle grade, and disposed without regularity, not in gigantic sweeps and billows like the broad swells of Cape seas. Each eminence is separated from its neighbour by a rift or valley, deep or shallow hollows which may often have been lakes, generally forested, and during the rains bottomed with swamp or stream. In the Province of São Paulo the surface of monticles has a lower profile and sometimes falls into the semblance of a plain, whereas Minas has rarely, except in her riverine lines, sufficient level ground for the site of a city. This sinking of the heights and shallowing of the depths continue progressively and uninterruptedly through the Province of Paraná, and

* In the Far West these features are called Campos Geraes or General Plains, often abbreviated to “Geraes.” The word is supposed to express their fitness for agriculture and stock-breeding in general. Another modification of the Campo is the Taboleiro (table-ground), which when very large becomes a “Chapada” or plateau.

In Vol. II. Chap. 8, I have distinguished between the Taboleiro coberto and the Taboleiro descoberto. The “Campina” is a little formation in the Taboleiro, generally a slope towards water, where the soil is better and the grass affords superior forage.

reaches its maximum in the Pampas and Llanos, the naked or thistle-clad *landes* of the south.

The Campos form the third region of this portion of the Brazil, lying westward of the Maritime Serra and the Beira-mar or coast country. It is a sedimentary and stratified plateau 2000 to 2500 feet high, subtended to the east or seaward by the great unstratified and plutonic ranges, which average in height from 3000 to 4000 feet. In one place Gardner found the Organ Mountains 7800 feet above summit level, and thus in this section of the Brazil, as in Zanzibarian Africa, the summit line is not in the interior but near the coast.* Moreover, the mountains do not attain the altitude of those in Greece (8250 feet). Here we enter upon the vast Itacolumite and Itaberite formations which characterize the mountain chains of the interior, and which stretch, with intervals, to the Andes. The floor is of hypogeneous crystalline rocks, granite, and syenites, which in rare places protrude, and which are mostly seen where the beds of great rivers have cut away the upper deposits. Thus, to quote no other instance, in the Nile Valley, 400 miles long by 12 of breadth, granite forces its way at the Cataracts through the limestones and sandstones; in Unyamwezi I found enormous outcrops of Plutonic breaking through the Neptunian rocks. M. du Chaillu (2nd Exp. chap. xv. p. 292,) describes the same at "Mokenga" in Ishogo-land, about 150 direct miles from the West African Coast.

Resting, here conformably there unconformably upon this undulating basis, crystalline and stratified, both in the interior and on the coast, are, as natural gashes and artificial cuttings prove, layers of pebbles, chiefly quartz, now water-rounded, then sharp and angular, lying in level or wavy bands and seams, as if deposited by still waters and by ice action.† Superjacent, again, is the deep, rich clay which makes the Brazil, like Africa, an Ophir,

* The Itatiaiossú is, as I have shown, considerably higher; but at that point the Mantiqueira is also near the coast.

† The glacialists will recognise in this one of the many forms of drift phenomena. Probably the same will be found in the great basin of Central Intertropical Africa, with a tendency of glacial action towards the Equator, and the usual remarkable continuity. In the Brazil the clays and marls are sometimes based upon sand, which seems to be fresh from the

sea-shore.

May not the glacial theory explain the "freddo e caldo polo" of Monti? We are, I believe, free to think that our solar system, a subordinate portion of the great stellar universe, may have traversed in its vast orbit spaces where the temperature was higher and lower than it is at present. The variations of the ecliptic, assumed to be one cause of the change of climate, require 25,000 years for their completion.

a red land, ochraceous, highly ferruginous, homogeneous, and almost unstratified, once a paste of sand and argile with pebbles and boulders scattered indiscriminately through the deposit. The surface is siliceous and argillaceous, poor and yellow, scanty in humus, and thinly spread with quartz and sandstones mostly containing iron. This formation happily secures them from the terrible dust-storms of Asia and Africa.

The first sight of these Campos reminded me strongly of Ugogo in Eastern Africa, the arid lea region robbed of its rain by the mountains of dripping Usagara. Then the analogy of the elevated trough formation of Inner Africa* with the Brazilian plateau suggested itself. The main point of difference is—a glance at any map will show it—that the vast lacustrine region of the parallel continent is here imperfectly represented, the drainage slope of South America is more regular, its “continental basins” have no great rock fissures like the Tanganyika bed, no vast hollows like those of the Victoria Nyanza. Thus the main arteries find in this æra of the world uninterrupted way to the ocean, and thus in South America, whose mountains and rivers equal or rather excel those of all other continents, there are no lakes, while North America and Africa, with their sweet-water inland seas and Nyanzas, have comparatively stunted Cordilleras. The lake in this country becomes the Pantanal or flooded Savannah, grounds watered by inundations, and often, like Xaráyis and Uberába, mere enlargements of great rivers, tranquil and shallow sheets where submerged bush and drowned forests form bouquets of verdure, where the dry tracts, like the little prairies in the dark seas of the African jungle, show charming fields sprinkled with flowers, bearing the palm and the magnolia; and where floating islands are bound together in impassable tangle with aquatic and semi-aquatic plants, Pontederias and Polygonias, Malvaceæ, Convolvulaceæ, Portularias, tall Sacchara, and the rice known as Arroz de Pantanal (*Oryza paraguayensis*).† These swamps support a considerable population of canoe-men, and have been sung by the

* M. du Chaillu found in Ashango-land, on the West African coast, a range running from the north-west-by-west to south-east-by-east, upwards of 3000 feet in height, and dividing the waters that flow to the ocean from those trending to the interior, and thus exactly corresponding with Usa-

gara. I also observed their continuation on the course of the Congo River.

† Those writers are in error who derive rice from Asia. A species grows wild in Central Africa as in Central South America.

poets of the Brazil. They form a characteristic feature of the central regions in Southern America.

A typical feature in these Prairie lands is that which Minas calls "esbarrancado," and São Paulo "vossoroça."* At first sight it appears as if a gigantic mine had been sprung. It is either natural or artificial, and an unpractised eye can hardly distinguish between Nature and Art. The former is generally, if not always, the effect of rain-water percolating through the surface into a stratum of subjacent sand or other material that forms a reservoir above the ground rock *in situ*. Presently the drought creates a vacuum; heavy rains then choke the enlarged cavity, and at last the hill side, undermined to the foundation, is suddenly shot forward by the water pressure with the irresistible force of an eruption, leaving a huge irregular hollow cone, sometimes shallow, sometimes deep, like the crater of an extinct volcano. Fatal accidents have happened from these earthen avalanches, which are not unknown to the British islands; † and in 1866 several houses near Petropolis were buried by huge fragments measuring several thousand cubic feet. After the fall a perennial stream generally issues from the water breach, causing a long fracture of the lower level, and creating a valley where before there was nothing but a mountain. The weather transforms the irregular gash into a quarry with a circular head, and thus in time a considerable portion of the high ground is swept down into the hollows, which centuries will convert to levels. Some of these landslips are "alive," that is to say in process of enlargement; they are known by their watery bottoms: their "death" is caused by grass, shrubs, and trees, whose roots and rain-dispersing heads arrest the growth.

These vast fissures, opening into highly irregular glens and ravines, have in some places made the Province of Minas a succession of impasses which time only can bridge. Nothing can be more interesting to the traveller than the puckerings and the

* Esbarrancado, "broken into a precipice," from Barranco, a precipice, a river bank. "Vossoroça" is a local term for these hollows: hence the name of the city "Sorocaba," once celebrated for its mule fair. Cába or -aba terminal denotes place, time, mode or instrument. The common Tupy word for hole is coara (quára), as araraquara, the "Macaw's

hole."

† I have heard of them in Ireland, where the vacuum or cavity is formed between the peat surface and the gravelly substratum. The late accident at Santa Lucia (Naples) was also partly due to the pressure of the sandy soil swollen by frequent rains and rocked by continual earthquakes.

spine-like processes, the vast arêtes, the fantastic spires, and the florid ornamentation of a Gothic cathedral springing from the vertical or sloping sides of these water-breaches, whose angles are determined by the nature of the subsoil. They are best seen from below, and they reminded me of a section of a Desert "Kanyon." The hues too are vivid as the forms are varied; all the colours of the rainbow are there, flashing with quartz and mica, the detritus of ancient rocks. The walls are banded with colours resulting from decomposed metals: dark purple, from chromes and ochres; a rich red with pulverized sesquioxide of iron, green with copper and pyrites, yellow with hydrate of iron, snowy white with decomposed felspar, silver-coloured with talcose schist, blue and violet with oxides of manganese, dark brown with carbonized turfy deposits, charged with ulmic and humic acids, and variegated with kaolins hard and soft.* We soon learn to distinguish the artificial feature.† The soil of the latter is the auriferous dark red limonite; rubbish heaps and spoil banks of pebbles and conglomerate show that the miner has been at work, and frequently there are ruins of houses within easy distance.

The vegetation of these high grassy lands offers a wonderful contrast to the dense forests of the seaboard and the Serra, where the visible horizon may often be touched by the hand. This singular fecundity of vegetable matter, this "plica of growth," is apt to deceive the stranger by suggesting an excessive fertility and depth of soil.‡ If he will penetrate into the "lush," he will find the true roots running along the surface so as to feed upon every possible inch of shallow humus, and the shallow radical disks of the prostrated giants show that no tap-root has been able to strike down into the ferruginous argile of the huge red clay heaps and mounds, whose core of blue gneiss often lies within a few feet of the ground. And when these trees, perhaps the produce of a century, and forced by a hot-house atmosphere, with rain and sun *ad libitum*, are once felled, they are followed, as has been said,

* "The red clay" (barro vermelho) in the presence of organic matters, principally decomposed plants, becomes black or blue, by the partial de-oxidation of the red peroxide of iron that passes into dark peroxide. If the red clay be in contact with water, the peroxide changes to the yellow hydrate, and thus under the influence of carbonic, pronounces the white

Tauatinga. The granite-clays, moreover, may be lively red, yellow, white, blue, or black, and by their mixture russet or brown." "Decomposição dos Penedos no Brasil." Por G. S. de Capanema. Rio, 1866.

† Esbarrancado de lavras.

‡ This refers especially to the provinces of Rio de Janeiro and São Paulo.

by a second growth of paler, yellower verdure, which at once betrays the poverty of the soil.

On the other hand, the Campo, apparently a heap of stone and stunted grass, inhabited principally by armadillos and termites, is apt to suggest the idea of stubborn sterility, which is far from being the case. I have not yet seen in the Brazil what Mr. Bayard Taylor calls the "spontaneous production of forests from prairie land." Botanists and travellers, moreover, do not agree about the original clothing of the country: some believe that it was always barren of timber; others that it was in old days a primæval forest. The truth lies probably between the two extremes. Doubtless, as about the Upper Congo and the Prairies on the Missouri, much of this Campo-land has been forested; but the trees, especially near the towns, have been fired or felled. Thus the rainfall, partly arrested by the weatherward Serras, has still further diminished; the streams, so abundant to the eastward, have shrunk and dried up; whilst the gales, finding no blocks or screens to oppose them, have increased in violence. The annual burnings, here about August, intended to act as manure to produce a succedaneum for salt, and to promote the growth of young pasture, destroy the soil, and leave nothing alive but the Cerrados,* stunted and gnarled trees, with coriaceous foliage and suberous bark, which after a course of ages have learned to resist the flames, the sun, the rain, the cold, the dew, the frost, the hail, the drought. In Piauhly and the northern provinces the Campo is either "Mimoso" or "Agreste"—comely or couthless; the former has annual grasses, tender, juicy, and pliant; the latter, which is probably a natural feature, is known by its coarse, wiry produce. The soil greatly affects the vegetation. Often, travelling over the Brazilian Campo, we cross a short divide, and find on the farther side that the growth assumes almost a new facies, without difference of frontage or other apparent cause. But everywhere in the Campos, however barren, there are rich bottoms admirably fitted for the cultivation of corn and cotton,

* The Portuguese Cerrado is a garden or an enclosure; the Brazilian Cerrado (when important called Cerradão) is defined to be "campos cobertos d'arvoredo curto e denso;" the Spanish Chapparal, which Humboldt derives from a tree called Chapparro; and both are applied to the forma-

tion of the ground as well as to the growth. Sr. Luiz D'Alincourt (in p. 129, "Sobre a Viagem do Porto de Santos à Cidade de Cuyabá," Rio de Janeiro, 1830) writes the word Serradão. The two forms of the same sibilant sound (c and s) are often used indifferently by Portuguese.

and in most of them *Capoës** or tree clumps flourish upon the slopes, where they are sheltered from the wind and extend along the margins of the streams. Wood, after water the settler's prime want, will still last here for many generations.

Let us now cast a glance at the vegetation as it appears upon the *Borda do Campo*. The first remark is that the *Campo* is not so poorly clad as the *Llano*, the *Pampa*, and especially the *Steppe*: it will be sufficient here to mention the most prominent types.

The *Cerrados* or scrub, 10 or 20 feet high, and not unlike our hazels and crab-apple trees and the olives of southern Europe, are often *Acacias* and *Leguminosæ*. Such for instance is the *Jacarandá do Campo*, a *Mimosa*, whose wood is little valued; such is the "*Sicupira*"† (*Bowdichea major*), a straight hard wood used for axles; the *Angico* (*Acacia Angico*), which produces catechu; and the small-foliaged *Barbatimão* or *Barba de Timão* (*Acacia adstringens*, *Vellozo*), whose bark is styptic and rich in tannic acid, and whose leaves are valuable for feeding the cantharides fly. That "antediluvian" growth, the noble and valuable *Araucaria* (*A. imbricata* or *brasiliensis*)‡, the S. American pine, is seen only near settlements, and is probably an immigrant from *Paraná*, where it forms primæval forests. The distorted *Piqui*§ (*Caryocar brasiliensis*) gives an oily mucilaginous fruit, containing a chestnut eaten in times of famine. The *Tingui*|| (*Magonia glabrata*, *St. Hil.*) is a useless growth, with a shapeless pendent fruit like a huge fungus. The *Paú Terra* and the large-seeded *Patári* supply good charcoal: the bark, leaf, and flower of the latter are used for dyeing black. The *Cedro do Campo* (?) and various species of

* The evil done by these bocages or bouquets de bois is the generation of ticks and flies that injure cattle: but this bears no proportion to the advantages which they offer.

† The name is variously pronounced: according to the *Syst.* it is rich in stryphnum (astringent principle), and much used in household medicine (*Medicina Caseira*).

‡ This *Araucaria* must not be confounded with the *Araucaria excelsa* of Norfolk Island and the Chile pine. Every part of it is useful, the fruit, the timber, the turpentine which has been used as incense, and the fibre which will be used as grass cloth. I reserve a detailed notice of it for my description of the *São Paulo* Province.

John Mawe and Prince Max. do not seem to have heard that this pine belongs to more southerly latitudes than *Minas Geraes*. *Southey* says (i. 119), that the native name is *Curiyeh*, with the last syllable aspirated. It is properly "cury" or "cory," and enters into the word *Coritiba* in *Paraná*. Also the "pine nuts" are not as large as acorns, but about three times larger.

§ *St. Hil.* (III. ii. 27) writes *Pequi*, but prefers *Piqui*, as it is so pronounced. In *Tupy*, *Pequi* means a small duck, a canneton. *Gardner* has *Piki*, an inadmissible form.

|| *Gardner* writes *Tingi*, which in Portuguese would be pronounced *Tinji*.

wild *Psidium* are also common. There are several *Solanaceæ*: the Juá or Joá, vulgarly called Mata-cavallo and Rebenta-cavallo (burst-horse), whose yellow apple resembles the "wild bengal" of Africa; the Matafome,* an edible variety with red fruit; and the pleasant-scented Fruta do Lobo (*Solanum undatum*, *S. lycocarpum*, *St. Hil.*), said to be eaten by wolves and to poison cattle. The light green fruit, large as a foot-ball, is used as a detergent, and as one of the ingredients of soap. The most valuable tree and the king of the Cerrados is the Aroeira (*Schinus terebinthifolius*, or *Schinus molle*): the timber is of excessive hardness, resists weather admirably, and takes a fine polish. The leaves are used as epispastics, the decoction serves to alleviate rheumatic and other pains, and the gum rubbed on ropes preserves them from decay. The appearance of the tree when hung with its bunches of red currants is pleasing, but the people of the country avoid it. Tumours in the joints are, they say, produced by sleeping under it, and the highly sensitive who pass beneath it suffer from swellings in the face—this happened to the wife of one of my friends at São Paulo.† Unlike the true forest lands, the Serra and the Mato Dentro, the trees are mostly deciduous, and when they are bare the aspect is that of unpleasant nudity.

The clothing of earth near the road is the clumpy tussicky grass, known as Barba de bode (buckgoat's beard, *Chætaria pallens*). When young and green, this *Stipea* is eaten by cattle; it is, however, a sign of poor soil that has been much trampled upon. Capim redondo and superior grasses grow in the offing, and at Bertioaga, to the south-west of Barbacena, there are, I was told, wild oats as in California, which ripen during the rains, and which suggest cattle breeding on a large scale.‡ The hardy lucerne of the United States, the Alfafa of the Argentine Republic and of Paraná, will some day be tried, and may succeed in making first-rate hay. In the hollows we find the tall grass of

* Juá or Matafome—"kill hunger"—is what Caldcleugh (ii. 208) calls Juan Matafome, and compares with a yellow gooseberry. In p. 210 he speaks of Mata Cavallos (kill-horse) as "a small bush covered with berries . . . like a *Solanum*," which it is. I am not sure that this plant is poisonous; a cultivated variety of it is a favourite in the Province of São Paulo, and I am told that children—who here eat what men will not—have eaten the Juá.

† The Indians used the green juice of the young branches for diseases of the eyes.

‡ Mr. Walsh (ii. 76) found that what he supposed to be an immense flock of sheep, "was nothing more than the wiry tufts of a species of wild oats, whose bending heads at a distance much more resembled a feeding sheep than the barometz of Tartary resembled a lamb." He also found an *Avena sterilis* near S. José.

several species, called by the people Sapé (*Saccharum Sapé*, St. Hil.). It appears in richer soils when overworked, or where the ground has been often fired. The Samambaia fern also, which covers a large proportion of the prairies, grows under the same conditions. Most of the shrubs and smaller plants are medicinal, and the people* are well acquainted with their use. Besides the true and false *Chinchonacæ*, there is the Carapiá, † valuable in chest complaints; it perfumes the air, as does the heath-like Alecrim do Campo (*Lantana microphylla* Mart.), a Labiad, which entered into "Hungary-water." ‡ The Vassoura or broom plant (*Sida lanceolata*), which supplies alkali and resembles ragwort, is used as an emollient in infusion and decoction. The Assa-peixe branco, § one of the Composites, acts like chamomile. The aromatic Velame do Campo, "veiling of the prairie," (*Croton fulvus* or *campestris*) is a powerful diaphoretic and resolvent known to all. In the bushes there are many species of wild Ipecacuanha called Poaya (*Cephaelis ipecacuanha*). The Labiad known from its shape as Cordão de Frade, "Friar's Waist-cord" (*Leonotis nepetifolia*, Mart.), is a powerful narcotic. The Composite Carqueja (*Baccharis*, *Nardum rusticum*, Mart.), with triangular elongated leaves and whitish buds at the angles, is a bitter tonic, aromatic and antifebrile, much used in German-Brazilian beer.

I need hardly say that nothing can be purer than the perfumed air of these Campos; its exhilaration combats even the monotony of a mule journey, and the European traveller in the Tropics recovers in it all his energies, mental and physical. The mornings and evenings are the perfection of climate; the nights are cool, clear, and serene, as in the Arabian Desert without its sand. Nor are the prairies deficient in the highest beauties of form and tint. There is grandeur in the vast continuous ex-

* It is the fashion to deride the "Curandeiro" or simple doctor of the Brazil; yet from the days of Pison's Maregraf he has taught the scientific botanist what knowledge he learned from the forest people. As Prince Max. shows, the latter could cure hernia, knew how to cup and bleed, dressed the most dangerous wounds, and practised the vapour bath, which like the Wood and Stone Ages is almost universal; the latter was effected in the usual savage way by heating a large stone and by pouring water upon it. "La malade se plaça

aussi près qu'elle put au-dessus de l'endroit échauffé, ne tarda pas à transpirer fortement par l'effet de la vapeur qu'elle recevait, et recouvra la santé."

† Corrupted from Caa-pia, or pyá (heart, liver), a *Dorstenia*, one of the *Urticacæ*.

‡ Alecrim is derived from the Arabic الإكليل الجبل El-iklil el-jabal, the "Crown of the Mountain."

§ White "roast-fish;" the *Eupatorium* is so called, I presume, because skewers were made from it.

panse fading into the far distance. The eye can rest upon the scene for hours, especially when viewing from an eminence, whilst it is chequered by the afternoon cloud, whose eclipse seems to come and go, and this gives mobility to the aspect, as it walks over the ridged surface of the light green or pale golden earth-waves, upheaved in the intensely blue atmosphere of morning, or in the lovely pink tints of the "afterglow," from the shadowy hollows and the tree-clumps glooming below. If we analyse the charm, its essence seems to be the instability of the ocean when we know that there is the solidity of earth.

CHAPTER VII.

AT BARBACENA.

Respirando os Ares limpidos,
A viração mais amena
Da liberal Barbacena * * *

Padre Corrêa, Poesias, vol. iii. 11.

A HAPPY inspiration induced me to call upon Dr. Pierre Victor Renault of Sierck, Vice-Consul of France, Homœopathic Physician, Professor of Mathematics, Geography and History at Barbacena. He has spent thirty-four years in the Brazil, he knows by heart the byeways of Minas Geraes, especially about the Rivers Paracatú and Doce, and he has lived amongst and learned the languages of the wildest savagery. He once acted cashier to the Morro Velho Mine, and between 1842—6 he assisted M. Halfeld in opening the coach-road. He has married a Brazilian wife, and all the notables in the place are his "gossips."* What more could be desired in a guide? Although somewhat invalided by the bivouac and the field, he kindly and cordially placed himself at our disposal, took his stick, and led us out to look at the city.

Barbacena da Rainha lies in S. lat. $21^{\circ} 13' 9'' \cdot 1$, and W. long. $0^{\circ} 49' 44'' \cdot 3$ (Rio) in the culminating point of the Plateau, 3800 feet in "round numbers" above sea level.† The climate is essentially temperate; the annual maximum being 80° (F.) in the

* "Compadre" and "comadre," so called in relation to the *afilhado* or *afilhada*, the god-child, still form in the Brazil a religious relationship as in the days when our gossip was a God-sibb, or "akin in God." I have heard brothers address each other as *Compadre*, and the same term applied by wives to their husbands. These brother and sister sponsors may legally marry, but public opinion is as strongly pronounced against the union as the wise of England regard "confarreation" with the deceased wife's sister. If you intrigue with your *comadre*, you be-

come after death a peculiar demon whose sole object in life seems to consist in frightening muleteers. Foreigners resident in the Brazil are compelled to fall into the custom, which has its bad as well as its good side. In small country places, for instance, all the inhabitants are connected by baptism if not by blood, and thus the ends of justice are admirably carried out the clean contrary way.

† M. Liais, the latest and the best authority, makes the height of Barbacena 1137 metres = 3730 feet above sea level.

shade. The Highland city began life as the Arraial da Igreja Nova do Bordo do Campo, a halting-place for mule troops between Ouro Preto (22 leagues) and Petropolis (40 leagues); its chief trade was in cakes and refreshments sold by old women.* The site is unusually good for a settlement of such origin. In the Brazil, cities founded by ecclesiastics occupy the best situations, hills and rises commanding fine views; the laity preferred the bottom lands, near gold and water. It was made a municipal town in 1791 by the famous or infamous Visconde de Barbacena, Captain General of Minas, who baptised it after himself. Mawc (1809) describes it as a village of 200 houses, governed by an ouvidor or auditor judge. It was made a city by provincial law of March 9, 1849.† Its municipal population in 1864 was 23,448 souls, with 1954 votes, and 39 electors, covering 1400 alqueiras of ground, each alqueira being 10,000 Brazilian fathoms. The city numbered 5000 souls in 1849; it was then a kind of central oasis in the desert, formed by the southern Mato or forest region which we have traversed, and by the northern prairies over which we are to pass. Travellers to and from Minas loved to linger here; now they put themselves into the Union and Industry coach. In 1867 the rude census gave about 3600 souls within "Toque de Sino"—sound of the church bell. This retrogrades half a century; in 1825 the population was estimated at 3600, of whom 300 were whites, the rest being blacks, mulattos, and quarteroons. Such, however, was the first effect of the rail in Europe, and such will be the temporary consequences of improved communication in the Brazil. The white element now greatly preponderates, and the slaves, it is said, do not number 200 head.

In the last generation the Barão de Pitanguy made by commerce 400,000*l.*: no such fortunes are now open to industry. A house which cost 2000*l.* in days when labour was cheap willingly sells for 500*l.*, and this is a general rule in Minas. In 1864 more than 60,000 bags‡ of salt passed through the city; in 1867 this fell to 50,000.

The "Nobre e Muito Leal Cidade" began in 1842 a kind of "Secesh" movement, which took the name of "The Revolu-

* Sr. A. D. de Pascual calls it the "Freguezia dos Carrijós" in 1792. This is, I believe, an error.

† Castelnau (i. 198) says in 1841.

‡ The bag of salt weighs from 2 arrobas (64 lbs.) to 2 arrobas 6lbs. I found the average of 6 to weigh 2 arrobas 2 lbs.

tion of Barbacena." Minas, and her stalwart parent São Paulo, were especially aggrieved by the law of judiciary and electoral reform (Dec. 3, 1841), which, establishing chiefs of police, delegates, sub-delegates, and inspectors of quarters, overspread the country with a cloud of preventive agents. They cried out that these measures were in the interest of an oligarchy, and that thus, the citizens were placed at the mercy of the Government. Yet they repudiated republicanism, and professed the greatest loyalty to the head of the State. Minas was also furious with the Conservative Ministry of 1841, and even more so with her provincial President, Bernardo Jacinto da Veiega. The movement was precipitated at Sorocaba in São Paulo. Upon this, the Municipal Chamber of Barbacena met (June 10, 1842) and proclaimed Lieut.-Col. José Filiciano Pinto Coelho de Cunha acting President of Minas, with Sr. José Pedro Dias de Carvalho as Secretary. Pomba and Queluz at once rose, but the acting or "intrusive President" instead of marching at once upon Ouro Preto, the capital, wasted time upon a military promenade to São João d'El-Rei and elsewhere. The next two months saw various *peripéties*; the "Massena" of the contest being the present senator Theophilo B. Ottoni, who was proposed as Vice-President. In early August the then Barão de Caxias, after reducing São Paulo to order, appeared before Barbacena, and the city bowed before its "manifest destiny."

Barbacena, the white town on the hill-top, has straggled into the shape of a cross or T, with a random sprinkle around it; the main street, Rua do Rosario, is the perpendicular, running nearly north and south, whilst the eastern arm is truncated. The two main thoroughfares are unpaved in the middle; lines of stones rib their breadth, and at the sides are trottoirs of terrible roughness. The chief squares, mere widenings of the streets, are the Largo da Camara, where the palace of the municipality is; the Praça da Alegria, behind the Matriz; and the Praça da Concordia to the east. In one of them a piece of machinery, intended for the Morro Velho mine, cumpers the ground; the article is in a "fix;" the clay roads cannot convey it, and the town-hall threatens to fine it for remaining there. The houses are mostly "porta e janella;" the best belongs to the General-Deputy the Barão de Prados, who, at the time of our visit, was on duty at Rio de Janeiro.

We walked painfully up the main street, named after the mean chapel, Nossa Senhora do Rosário, an invocation much affected throughout the Brazil by slaves and negroes. It is generally known by a plaster crown on the façade, and beneath the crown, either detached or adjoined, is a rosary * ending in a simple cross. Beyond it was an Ermida or private place of worship, with a gilt bell; these little sacraria characterize all the older towns of Minas. Embryo inns still swarm; we counted half-a-dozen. The destructive and lucrative "Art of Healing" numbers many votaries: six allopaths, five apothecaries (and general practitioners), four midwives, known by the wooden cross nailed to the wall, and one homœopath. A square of white paper stuck inside the window shows "house to let," here apparently the normal condition of such property. The favourite building material is the well-known "adobe"—the sun-dried brick of Mexico and Salt Lake City: in Minas it is a mass of clay, often weighing 30—32 lbs. A few of the tenements have stone foundations to prevent the damp and rains crumbling and washing away these unbaked masses of mud; the houses' eaves are made to project abnormally.

We inspected the Matriz N^a S^a da Piedade, which fronts to the north-north east, and commands a good view down the main street, and into the open beyond. The sloping ground required for it a raised and stone-revetted "Adro"—platform or terrace. Here, as with us, was the earliest burial-ground, the churchyard under whose flags repose, *in pace Domini*, the ancient vicars and rude grandees. Thus Padre Corrêa ("Cavaco," p. 157, Woolf), sings:—

" Dos cemiterios e do adro,
Resuscita vaós espectros." †

The Adro is adorned at the entrance and the corners with well-cut little pyramids, and "promiscuously" with seedy willows, all athirst, and the "scrimpy," stiff, and worse than useless "Casuarina." The stranger wonders to see this Australasian savage—ugly as a Scotch fir—naturalised amongst the glorious vegetable beauties of the Brazil and Hindostan; its roots overspread and impoverish the soil; where the neighbours gracefully droop their branches, it turns them up with impudent preten-

* The beads seem to awaken the negro's sense of home; in Africa they compose his finest finery and his richest riches. Of

course here I speak of the "Popó Bead."
† "From the graveyard and the platform,
Praises be the empty ghosts."

sion, and its main purpose in Creation seems to be that of housing destitute crickets—

“ A importuna monotona sigarra,”

jolly beggars, whose ceaseless chirping and hoarse whirring drown the sound of the voice. The façade of whitewashed adobe and stone has four windows; in the older Province of São Paulo the number is a *sine quâ non*, five, the Trinity occupying the front, as they did the three Gothic steeples, Joseph and Mary the wings. A suspicious crack and a dangerous bulge appear about the entrance; they are attributed to the sinking of the font-water. There are two square campaniles, short and squat, after the fashion of the older Brazil, a cross, and a broken statue. The profile shows the usual big nave and broken chancel, a small barn backing a large barn, as in the countrified parts of England. The material of the decorations is the blue steatite* here abundant; it is often painted blue to make it bluer, “ and thus,” exclaims a talented Brazilian author, “ thus they assassinate Nature !” Like the lapis ollaris it may be cut with a knife, and exposure to the air soon hardens it by absorbing the “ quarry water.” Thus it is well fitted for carvings and coarse statuary. Some of the monolithic jambs are 14 feet long.

The entrance is guarded by the usual screen † of plain wood and glass peepholes. The choir-balcony is over the door; under it are two frescoes by a native hand, representing the Saviour's Passion, two holy-water stoups, and in its own chapel, to the left, a baptismal font of green-daubed granite.‡ Seven small windows placed high up admit a dim light, and there are two tribunes to accommodate the local magnificos. The wooden flooring, a parquet of moveable parallelograms, six feet by three, shows that it has been a cemetery, a custom which still lingers in Southern Europe; here it lasted till a sensible law, one of the benefits of yellow fever, put an end to the pious malpractice. The walls are pasted with election papers and other public documents, and on each side is a white and gilt pulpit in the normal style, which may be called the “ swallow-nest.” The six minor chapels § have altars of white, green, and gold; the

* Pedra azulada.

† Tapa-vento.

‡ Mawe, c. 10, says that there is in the neighbourhood of Barbacena, “ une carrière

de granit tendre, blanchâtre, dont on fait des meules.”

§ My wife took down the patrons, as follows: Right side—

pillars of stone and wood rest upon consoles, but these have basal pedestals, and are not founded upon nothing, as in most Brazilian churches.

The chancel arch leading to the high altar shows a massive silver candelabrum, worth 120*l.*, and presented by the pious Barão de Pitanguy. The curtain guarding the throne has a black cross on a white mortuary cloth of silk and wool, costing 100*l.*, and given by the Barão's son. The altar cloths are worked by the Barão's sisters. And there is a good statue of Italian marble representing a guardian angel at his devotions, and placed at an expense of 360*l.* by the Barão in honour of his father.

The high altar is of white and gold, with a "Dead Christ and Our Lady" on painted wood, and somewhat above life-size. The effect is not bad. There is a large tabernacle; four massive candlesticks of ormolu assist the tapers, and four tolerable modern oil-paintings represent the "Flagellation," "Our Lady at the Cross," the "Agony in the Garden," and the "Resurrection from the Tomb." I have lingered over this description; it will serve for all the churches in the "well-to-do" country towns of the Brazil, within the civilizing influence of the capital.

We next visited the church of (N^a S^a da) Boa Morte—of happy dispatch; it is a conspicuous pile on the western ridge, best seen from afar. The exterior of granite and steatite is grotesque, the towers have two clocks, apparently dummies, leaving work to the neighbouring sun-dial, and an ugly new sacristy of strange style has been stuck on to the original building, which bears date 1815. Thus Castelnau erred in supposing that the unfinished pile had been abandoned, like the Hyde Park Achilles. These places in the Brazil belong to Sodalties or brotherhoods, who proceed with them as fast or as slowly as funds permit; foreigners readily prophesy that progress has ceased, and moralize, when such process is uncalled for by the occasion, upon the decay of zeal in this our modern day. And yet they *do* move.

The interior is the normal barn—white and blue. N^a S^a da

No. 1. Saints Michael, Cecilia, and Luzia.

No. 2. N^a S^a do Carmo and N^a S^a do Rosario.

No. 3. N^o S^r dos Passos.

Left side—

No. 1. Saints Antonio and Rita.

No. 2. N^a S^a das Dôres and S^a Barbara.

No. 3. Saints Sebastian and Joseph, with the "Menino Deus"—infant Christ.

Also there is a little separate chapel for the Blessed Sacrament, with a crucifix, &c., S. Vincent de Paul.

Assumpção occupies the caput, and below her is a recumbent Virgin. There are two stone pulpits painted azure, an organless organ-loft, and three votive tablets on the wall. To the west is the cemetery, with its mortuary chapel, which owe their existence to our excellent guide. This "colony of the dead," though only three years old, is filling fast; catarrh and pneumonia, with their numberless varieties, being the principal *causæ causantes*. At the entrance we met a dead negro carried upon a stretcher by four black brethren, who, laughing and chatting, tossed and jolted the clay into a semblance of life.

Struck by the savageness of a white man beating a dog—a rare sight in Brazil, where humanity to animals is the rule—I asked who he was, and was told "an Italian." There are many of these emigrants in São Paulo—more in Minas—in fact, they extend from Pará to Buenos Ayres. They do not bear a good report, and my friends often warned me against being suspected of coming from the land which produced Cæsar and Napoleon, Dante and Macchiavelli. The *perfervidum ingenium*, the clairvoyant subtlety of the Ansonian, is a plague to him in these countries: he is too clever by half, or rather by three quarters. He returns to the Italian of the sixteenth century; he is dark, wily, and unscrupulous as Rizzio. Some answer to the old saying, "fur atque sacerdos." A certain Fr. Bernardo is reported to have sold for the Virgin's milk, "mosquito's eggs," as homœopathic globules are here called. The reader may think this a draft upon his credulity; but official documents prove* that these ecclesiastics have sold "veritable tears of Our Lady in rosaries," have passed off rubbish as saints' relics, and have sold "passports for heaven" at the rate of a sovereign a head. The Mineiro † may sing with Beranger:—

What imperceptibles we have !
 Small Jesuits of the bilious hue.
 Hundreds of other clergy grave,
 Who little relics hold to view.

* Appendix to Presidential Relatorio of Minas for 1865, p. 39. Moreover most large churches in these lands have a bit of the True Cross duly supplied to them by Italian speculators.

† Mineiro (from Mineira) is an inhabitant of Minas Geraes, the Province, and must not be confounded by the stranger with the African "Minas" of "St. George

del Mina" on the Guinea Coast. Varnhagen (History, ii. 281) warns us that at first the Mineiro was a term applied solely to the gold miner. A native of Rio Grande is Rio Grandense; of São Paulo, Paulista (substantive), or Paulistano (adjective), (not Paulense, as in the excellent handbook, "Brazil: its Provinces and Chief Cities," by William Scully. London :

From the Boâ Morte we descended the vile Ladeira da Cadêa, Prison Ramp, and looked at the jail: the barred windows showed three women. In almost all cases of premeditated murder throughout the Brazil, two of the active actors are a woman and a negro. The last of the public buildings to be visited is the Misericordia Hospital, in a cold hollow to the north of the city. The entrance bears inscribed—

Pauperis infirmi sit in ore Antonius Armond,
Et pius, et magnus vir, pater egregius.

Queer Latin, but well intentioned! All honour to Sr. Antonio José Ferreira Armond (nat. March 11, 1798, ob. 1852), who in five years built the little chapel of Santo Antonio, and the charitable establishment to which he left 12,000*l.*, an estate and fourteen slaves. In the absence of the priestly Curator the civil apothecary showed us about the building and allowed us to gather violets in the neat "Patio" or central garden-court.* The rooms were clean, and had six inmates: freemen pay about four florins per diem, and serviles half. The place has not a good name; patients are said to die for want of care, and Brazilians deride a "Misericordia" which charges for board and lodging. It is also far from good water, always a scarce commodity at Barbacena. The best is supplied by a fountain to the east of the city; the façade wall is inscribed with the name of the Camara Municipal for 1864.

We then inspected Dr. Renault's little garden behind the house, which vegetation spoke of a temperate climate; it is full of pinks, roses, violets, and verbena, † gladeoli, and heliotropes. The oranges were excellent, and from them our host made his "Tokay;" it cost about fourpence a bottle, and drunk with the Pinhão or Araucaria nut it suggested the best liqueur. At Morro Velho I obtained an excellent recipe; it is worth knowing in a country where millions of oranges and pine-apples, justifying Elia's rave,

Murray & Co., Paternoster Row, 1866.) There is a peculiarity in the use of the word Paulista; for instance, O fazendeiro Paulista is correct, Paulistano would not be idiomatic.

* Patio is Portuguese, derived from the Arabic بطحاء (bathah), even as Saguão, a vestibule, comes from صحن (Sahn). In

the Brazil the Patio is usually called Quintal; the latter, however, also means a small garden attached to a messuage.

† An indigenous growth, the Verbena virgata of M. Sellow. It is a powerful sudorific, and in the treatment of "chills" it equals lemon-grass.

are left to decay upon the ground.* We were also shown good specimens of the heavy hand-made pots of steatite or *pierre ollaire*, for which Barbacena is celebrated. The best ollary tale comes from the Mello village six leagues distant, and from the Mercês do Pomba,† a town ten leagues to the east upon the seaward slope of the Mantiqueira Range. The formation is found in the talcose and micaceous schists: the first quality is tolerably free from the crystallized bits of hydrate of iron, which induce decomposition. It is easily quarried, it hardens rapidly, and lasting long it is in general use throughout the country. The price ranges according to size from fourpence to twelve shillings, some being large enough to accommodate a round of beef. The smaller pots (*panellas*) rival the West Indian pepper pot for stewing. Some day this soapstone will be worked with great profit, and pipe bowls, for which I inquired in vain, ought especially to "take."

* The Count Hogendorf, *ex-aide-de-camp* to the First Napoleon, who took refuge in Brazil, made this wine, which M. de Freycinet (*Voyage de l'Uranie*, i. 231) compares with Malaga. St. Hilaire also described the process of making, but very imperfectly (III. ii. 347). The following is the Morro Velho recipe for making nine gallons of orange wine:—Take two hundred sweet oranges, pare off the thin outer rind of fifty, and put them to soak in four quarts of water. Squeeze out all the juice, strain it well, and put it into the barrel with thirty-two pounds of white sugar. Fill the barrel with water, and stir and shake it well, add a quart basin of ferment, and as it works off replenish it with the water of the soaked peels, so that it may be always

full. As soon as the hissing ceases, put in a quart of old sugar brandy, restilo, bung up the cask, and let it stand for seven months before bottling it. It sometimes takes as much as three days to begin to work, and has continued working from thirty to forty days. To give the wine a colour, you may burn a teacup of sugar in restilo, before the barrel is bunged up.

† Some write Mercês da Pomba. The expression, however, contains one of those ellipses so common in Portuguese and so difficult to the stranger; the full phrase would be (*N^a S^a das Mercês do (Rio da) Pomba*). The Pomba River is an important northern feeder of the Parahyba do Sul, and the lands about it are known as the "Mata,"—the bush.

CHAPTER VIII.

GUP.—THE HOTEL.—THE MULES.

Jardins, vergeis, umbrosas alamedas,
Frescas grutas então, piscosos lagos,
E pingues campos, sempre verdes prados,
Um novo Eden fariam.

José Bonifacio de Andrada e Silva.

AMONGST the curios, the “bric-à-brac,” shown to us by Dr. Renault, none was more interesting than the gold bar, the lingot d’or, formerly current in the Brazil. In the year of royalty 1808, according to Mr. Henderson, the circulation of gold dust,* then the medium of commerce, was prohibited—of course the use lingered long in the interior—and coins of the three usual metals were introduced. The bar kept up its circulation till 1832. The weight varied according to the quantity of gold brought by the miner to the Intendencia of Ouro Preto or elsewhere. The specimen which we saw was about three inches long, and valued at 15*l.*: sometimes it weighed several marcos, each marco=eight ounces. The ore was duly assayed, the Quinto or royal fifth was taken, and it was stamped with the number, date, royal arms, and standard (toque), 24 quilate or carat-gold being the purest. Finally it bore its value in ounces, octaves, and grains. It was accompanied by the usual paper, the “guia” or “guide,” a kind of manifest given to direct the carrier; without this it could not leave the Province.

After the bars came the age of gold oitavas (eighth of the Portuguese ounce) and their subdivisions. In 1816—1822 the oitava was worth 1\$500, but taxes reduced it to a current value

* “Canjica,” the diminutive form of canja, a word in which the Anglo-Indian would hardly recognise the old familiar “congee” or rice-water. In the Brazil it is applied to a “rice-squash” soup, to husked and boiled Indian corn, to the

granular gold and nuggets (pepitas) which St. Hil. says (III. i. 70) are called Maçamoras in the Uruguay or Banda Oriental; and, thirdly, to the diamantiferous gravel, as will afterwards appear.

of 1\$200 (=7 francs 50 centimes), for which men now pay 3\$500. The other coins were vintens d'ouro 0\$037·5=23 $\frac{7}{16}$ centimes, half-patacas and patacas (=0\$300), crusadas d'ouro (=0\$750*), half-oitavas and oitavas. Some of these coins were mere spangles, like the Egyptian piastres, and the people complained that they were easily lost.

The golden age expired in 1864. During the last quarter of that year the many ruinous bankruptcies at Rio de Janeiro called for an exceptional measure. The Government permitted, and not for the first time, the Imperial Bank, a private establishment like that of England, to issue instead of specie payments a forced circulation of paper money in a treble proportion to the bullion at its command. The privilege has been renewed, and, as figures show, it has not yet been excessively abused.† But times were bad, the Paraguayan war was absorbing bullion and returning nothing, all the gold currency was withdrawn and substituted by Treasury notes. Brazilians soon remembered that there had been such things as assignats. In the short space of three years gold has completely disappeared from the Gold and Diamond Empire, and except in the Museums I have not seen a gold coin. Silver is rare, but not so rare, and of late there has been a new issue of somewhat debased small change. The principal bullion is copper, a metal introduced by the celebrated Vasconcellos, "great architect of ruins and scourge of Ministries:" the "dump," thus elegantly termed by the English, is a piece of 40 reis, the local penny. It is uglier and more barbarous than its British representative, but it is on the point of making way for a neat bronze piece, with 95 parts of copper, 4 of tin, and 1 of zinc.

The place of gold and silver is thus taken by "flimsies," which begin at the minimum of 1\$000, and the maximum of 500\$000, the latter but lately issued. Every bullionist, in the United States sense of the word, will understand the result of this

* St. Hil. III. i. 366.

† In April 1, 1867, the whole issue of paper money in the Brazil was as follows:

National notes . . .	42,560 : 444 \$ 000
Bank of Brazil . . .	73,476 : 710 \$ 000
Other banks . . .	2,461 : 700 \$ 000

Total . . .	118,498 : 854 \$ 000
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This sum had increased on March 31st, 1868, to 124,686 : 209 \$ 000.

In this session, however, a bill was

passed empowering the issue of forty-five millions (mil-reis) in notes.

The paper money does not present to the traveller as many difficulties in the Brazil as in the United States. His only chance of loss—if at least he wisely prefer imperial paper—will be that incurred when old notes are called in. Private bank-paper will cost him 2 to 5 per cent. everywhere, except at the place where it is issued.

unsound paper currency. It is fatal to economy, it doubles small expenses, and its effect is that whilst the Brazil exports to Europe gold and diamonds, coffee and cocoa, cotton, tobacco, and sugar, she receives in return nothing but “trash,” the refuse of the markets delivered at the highest possible prices.*

More disastrous still, on account of the national fears and suspicions, has been the effect of this paper upon the mil-reis. Travellers assure us that in 1801 this, the practical unit of value, was worth 5 shillings $7\frac{1}{2}$ pence. In 1815 it represented 6 francs 25 centimes. In 1835—36 it was 30—32 pence. When I landed at Pernambuco, June 1865, it was at par=27 pence. It has in 1867 fallen to $13\frac{3}{4}$ pence, and under actual circumstances there is apparently nothing to prevent it sinking, like the dollar of the South American Republics, to twopence.

But the Brazil is a young country, eminently rich in resources still unexploited. A debt of 60 millions of pounds sterling, the “ballast of the ship,” is to her literally a flea-bite, considering her enormous excess of exports over imports, that is to say, of income over expenditure. If she ever become bankrupt, it will be because, with enough to pay off a score of such debts, she has not kept ready money enough in hand for household expenses. She has clerical property to be secularized, public lands to be sold, a system of direct taxation to be introduced, import dues to be taken in gold when such process will not discredit her own credit, and mines of precious metals waiting to be worked. All bullionists will agree with me that the sooner her paper is replaced by gold the better. As early as 1801 Dr. Couto proposed to raise the value of the metal by making the oitava represent 1\$500 instead of 1\$200, a far-sighted policy. We have all witnessed what a small premium upon gold has done in France, where it was treated as an article of commerce, not as an inflexible standard—the old English view. This measure would save the discount upon paper, and the heavy expenses incurred by the Caixa de Amortização, that peculiar South American form of sinking fund.

* The least being double the market value in Europe. Again the mil-reis (Anglicè milrea) is a financial error like the rouble of Russia and the rupee of Hindostan; everything costs a mil-reis. Thus in Europe we find that the carlino and the paolo do the duty of franc and shilling.

I am perfectly aware that the “absurdity of discouraging the exportation of precious metals” was disclosed some two centuries and a half ago. But it is contended that new countries mostly present exceptions to the economic law, or rather to its operations, and that of these lands the Brazil is one.

The monetary system of the Brazil, arithmetically considered, is good, because it has rendered decimals familiar to the people. Strangers forget this when they complain of the long array of confusing figures. The true unit of value is the *real* (plural reis) written 0\$001;* a "conto," or million of reis, is written 1:000\$000, or without the three dextral ciphers, 1:000\$, and as in Brazilian arithmetic generally, a colon is placed to the right of the thousands.

The old Portuguese subdivisions of the mil-reis are mostly conventional, like our guinea. They are, 1, the *testão* (testoon) = 100 reis, or the tenth of the mil-rei; 2, the *patáca* = 8 "dumps" = 320 reis (what a tax upon memory!); 3, the *crusádo*, once half-a-crown, now = 10 dumps = 400 reis; 4, the *sello* (rare) = 1½ *pataca* = 480 reis; 5, the half mil-reis = 500 reis; 6, the *patacão* = 3 *patácas* = 960 reis. The hideous copper coinage is 1 *vintem* (a score of reis, plur. *vintens*) = 0\$020, and the *dois vintens*, or "dump," = 0\$040. The older travellers were obliged to have a mule for the carriage of this Spartan coinage.

We dined together at the *table d'hôte*, a motley group, the Austrian ex-lieutenant, the driver, and sundry citizens of Barbacena. All harmonized well, and in the evening our good guide gave me the following items of information. I must premise, however, that the Doctor is an enthusiast for his adopted country.

The Campos of Barbacena, the broken plains beyond the Mantiqueira Range, raised 3000 to 3500 feet above sea-level, are evidently well fitted for stock breeding. The principal use of black cattle is at present to produce the cheese, which is exported to the capital of the Empire. About six square acres are allowed for each cow; thirty-two bottles of milk yield 2 lbs.; the women and children of a family easily make half a dozen loaves per diem, and *colporteurs* sometimes collect 200 from a single establish-

* The monogram of dollar (\$) precedes in the United States, and in the Brazil follows the figure. In the older Brazil it is sometimes written U. This favours the idea that the mark is a contraction of U. S. Others believe it to stand for a "piece of eight" (reals), the Spanish dollar which gave birth to the American dollar, and that the parallels were drawn across the 8 to distinguish it. Others again derive it from the columns and scroll of

the Spanish pillar dollar, which the Arabs liken to a window or to cannon. Another minutia is prefixing Rs. (reis not rupees) to large sums, e. g. Rs. 100:000\$000.

N. B. Since the above was written, on Sept. 5, 1868 a decree authorized the Minister of Fazenda to issue 40,000,000\$000 of further paper money. An act of Sept. 28, '67, authorized an issue of 50,000,000\$000. Of this, all has been emitted but 3,614,000\$000.

ment. St. Hilaire's account of the rude process is not obsolete; the cheese material is hard and white, equal perhaps to the Dutch "cannon-ball," but not to be mentioned with Stilton or Roquefort; like Parmesan, it is good for grating. It awaits improvement in the dairy and even in the churn, which John Mawe tells us was not known before 1809.

The cereals flourish in the richer soils: wheat,* the maize or "corn," which in the Brazil takes the place of oats; rye and buckwheat, also called black-wheat: the two latter are hardy, and require little care. Tubers abound. The American potato, here known as "English" or "Irish," gives two crops per annum; and the batata or sweet potato (Tuber Parmantier), four. There is also the Inhanu (*Caladium esculentum*); the Mangarito† or Mangareto (*Caladium sagittifolium*) and the well-known and excellent Cará (*Dioscorea alata*, St. Hil.). I saw, for the first time, the Jacutupé‡ and the "Topinambour," "Tupinanbur," or "Taratouf."§ Of the fruits, pears, apples; plums, white and black; cherries, chesnuts, damsons, and peaches, grow well, and are worth improving. The grape, especially that called the Manga,¶ or American, bears twice; the vintage is poor in July, but in December the bunches are marvellously large and numerous. The unripe crop makes good vinegar; the ripe yields a thin, rough Bur-

* Wheat will grow at these altitudes in the sub-tropical regions, but it is always liable to rust (*ferrugem*).

† Prince Max. (ii. 76) calls the plant "le mangaranito (*Arum esculentum*)." St. Hil. (I. i. 402), speaks of the "Mangareto branco," and a variety of a violet colour known as "Mangareto Roxo."

‡ According to Dr. Renault, Martius has not yet named the Jacutupé. It is evidently a legumen with papilionaceous flowers, creeping on the ground with a root 4—5 decimetres long, by 1—2 in diameter. The flower of blue-violet is followed by siliqueæ, each containing 4—5 beans, resembling the "fève de marais" (Windsor beans?). These are very poisonous, killing animals in a short time. The toxic substance may be a new and especial alkaloid, or as it seems by analogy, perhaps Brucine. Its tonic properties are supposed to be the result of a great disengagement of carbonic acid. The beans are planted in September, and the roots are edible after six months; when taken up they cannot be kept long. The well-rasped fecula makes excellent starch, and is used by the Brazilian house-

wife for thickening soups and for making sweetmeats, which much resemble conserves of the cocoa-nut. The Jacutupé flourishes most in light lands where there is shade.

§ Dr. Renault tells me that this *Helianthus tuberosus* is also called "Artichaut de Canada" and Poire de terre; it belongs to the great family of Synanthereæ, order Radiaceæ, genus *Helianthus*. It has been often confounded with the sweet potato (*Convolvulus Batatas*), as in both plants the tuberosities of the roots are mere swellings. Some derive it from Chili, others make it a native of the Brazil, where however it is little cultivated, and only in gardens. It is a hardy plant, which would thrive in Europe. Dr. Renault says that the root would be a blessing to the poor, and opines with the philosopher that a new dish is of more general importance to humanity than the discovery of a new star or planet.

¶ I have not yet seen a cherry in the Brazil.

¶¶ The well-known fruit which we call Mango.

gundy; and the raisins give excellent brandy, like the Raki of Syria.

Mulberry trees thrive; they do not lose the leaf in the cold season, but continually renew it; after the second year they can be utilized. I am told that M. Abricht, now at the colony of Joinville, has found five indigenous species of silk-worm. Castelnau (146) declares that the true *Bombyx mori* is nowhere to be met with in the Brazil; he observed, however, many large species of the "Saturnia," known to the Chinese and to the Hindus. The Urumbeba (*Cactus spinosus*), also called Figueira do Inferno, grows wild; and the cochineal insect* appears spontaneously, showing that the fine Mexican or Tenerife Nopal might be naturalized. Both soil and climate are propitious for the hop, which is now imported at a heavy price from Europe. The hardy and almost indestructible tea-plant gave crops of fair market value; this industry was destroyed by the fall of price at Rio de Janeiro. Cotton, both the herbaceous and the so-called arboreous, has been grown on the "Capão"-lands, and, intelligently cultivated, it will be wealth to the Province. The tobacco of the Rio do Pomba, 15 leagues from Barbacena and the Rio Novo, won the medal at the Industrial Exhibition of Rio de Janeiro; that of Baependy, especially the "Fumo crespo," is a dark strong leaf, well fitted for making "Cavendish" or "honey-dew;" and the "weed" flourishes throughout Minas Geraes. The soil will be much improved by compost: and the produce by being treated in Virginian style, delicately dried in closed barns with fires. Indigo grows everywhere wild, and gives that fine purple gloss which rivals the produce of Hindostan.† Dr. Renault declares that every hive of the European bee "gives from twelve to fifteen

* In many parts of Minas Geraes the "prickly pear" Cactus grows without prickles; it is eaten by children, not as at Malta by all classes and ages, who hold it during the hot season to be a wholesome cooling fruit eminently fitted for breakfast. As regards cochineal, the dye which has made obsolete the Tyrian purple, Dr. Couto, writing in old times, says, "A Cochinilla, planta em que se cria esta tinta igual ao ouro no valor, e da qual temos tanta abundancia, cresce inutilmente entre nos." "Cochineal, a plant upon which is raised the dye that equals gold in value, and of which we have such an abundance, grows useless on our lands." A small exportation of cochineal was tried between 1800—1815,

but adulteration with flour soon crushed the attempt. Prince Max. ("Voyage au Brésil," vol. i. chap. 3) found that at "Sagorema" it had been cultivated and fetched 6\$400 then = 31 francs. I shall have more to say about cochineal when descending the Rio de São Francisco.

† In 1764 a law was passed exempting from duty the indigo of Pará and Maranhão. Under the Marquês de Lavradio, third Viceroy of Rio de Janeiro (1769—1778) the exportation was attempted from the Captaincy of Rio de Janeiro; the article was excellent, but as was the case with cochineal, the excessive adulteration disgusted the trade. The plant was mostly the *Solanum indigiferum* (St. Hil.).

swarms (enxames) per six months; $1\frac{1}{2}$ lb. of wax with 20 litres of honey; whilst each litre of the latter produces four litres of excellent aqua vitæ." Nothing, I may remark, is more wanted in the Brazil than *la petite culture*, bees, silk-worms, cochineal, seed-picking, which will work the hands of women and children.

The Barbacenense Hotel, pronounce 'Otel, even as Uncle R—— will say "an hotel," is the usual guest house of the countrified Brazil. As it is frequented by strangers there is salt upon the table, here not the general usage, and a huge joint of beef appears, if possible, by the side of the grilled and boiled-with-rice fowls, the hunches of pork, the sausages, the chopped cabbage-cum-lard (*Couve picado*), and the inevitable haricots of the national cuisine. The worst part of it is the "addition," which has all the "beauties of dearness;" unless there be a special agreement the multiplication of items would read a lesson to a "Family Hotel" in Dover Street, Piccadilly, or any other place where that obsolete institution, an ancient English inn, lingers out its dishonest old age. Brazilians, like Russians, take pride in a generosity verging upon recklessness and profusion; moreover, the exceeding courteousness of manner that characterizes the people prevents the Cavalheiro observing openly that he has been plundered. He therefore pays with apparent cheerfulness, departs, and grumbles.

The "Maje," as our host would be called in the Far West, further north, sent us in an unconscionable bill; possibly he was excited by the abnormal appearance of Mr. L'pool. The costume of our fellow-traveller consisted of (firstly), a tall broad-brimmed cone of felt, brigand-like, adorned with a cockade of rare feathers; of (secundo), the threadbare shooting jacket and frayed waistcoat and terminations, worn only by the wealthy Britisher; of (thirdly), a broad silk sash, splendid as a marigold, over which was buckled (fourthly) the "Guayáca," a belt of untanned leather, in which the wild Guacho of the Pampas carries his coin when he has any. In this case it was furnished with (fifthly) a loaded Colt's six-shooter: and (sixthly), with a bowie knife of Brunmagem silver, very "low" in Brazilian eyes; (seventhly), there was a pair of "tamáncas," wooden pattens, used only in the house, and these had been provided with leather thongs like the sandal ribbons worn by our venerable feminine parents in the days when Charles Dix was yet Roi. Add to

this a "capánga,"* or pouchlet of coarse canvas, in which the muleteer stows away tobacco, flint and steel, pack-thread, and as much miscellaneous cargo as is contained by the schoolboy's pocket. Thus equipped, the wearer was the model of an English travelling gentleman.

The Brazil may be improvident, profuse, reckless, but not so North Britain. Mr. L'pool scrutinized, with underwriter eyes, the "little bill," and at once detected charged to us 32 bottles of beer, which the "Maje" had drunk to drown his sorrows. Poor little old man, his family allows him no "trink-gelt!" When remonstrated with, he offered seriously, but in bitter irony, to reduce his account to nothing—to one quarter—to half. But the fine satire being utterly thrown away upon the son of that city where men seem to be born with brown paper parcels under their arms, he took off 14 shillings from as many pounds sterling, and thus ended the Battle of the Bottles.

Good news awaited us at Barbacena. Mr. J. N. Gordon, Superintendent-in-chief of the great English mine at Morro Velho, had kindly offered to send mules for us to Juiz de Fóra; our delay had caused the troop to march northwards, and we were in no small fear of missing it. Hired animals are here paid 5\$000 per diem each, including a mounted guide. But they are seldom good, never safe, especially where a riding-habit is in the case; and the first comfort of travel in the Brazil depends upon your beast and your saddle. It was therefore with no small satisfaction that we found ten good beasts under the charge of Mr. Fitzpatrick, whose sole duty it was to look after them and their furniture. In Persia we should call this Master of the Morro Velho Horse a Mirakhor, Chief of stables, here he is an Escoteiro or Ecuyer—all I shall say of him is that he kept his men sober, and that he made us thoroughly comfortable.

Every traveller complains of the testy and petulant mule; every traveller rides mules, a necessary evil, as horses cannot stand long marches in this part of the Brazil. The beast may be learned by studying the mulatto and the eunuch: like those amiable monsters, it appears to eye all creation with a general and undistinguishable hate. It will not become attached to the

* This bag is taken from the Indians, who when hunting slung it over the shoulder like a kind of *earnassière*; it was

of cotton cords knotted and plaited and dyed alternately yellow or red brown, with the "catoua" bark.

master, treat he it never so kindly; the rider can never be sure of it, and of all animals it is the most violently agitated by fear. Its tricks are legion, and it seems to feel a consciousness that its treachery can always get the better of a struggle: elderly men, therefore, prefer horses to mules. It is a mistake to believe in the brute's hardness: here at least I find that the sun soon tires it, and that it requires much grain, plentiful drink, and frequent rest. During my travels in the Brazil one fell with me through a bridge, despite the vaunted muline sagacity; another dropped on its side;* a third, a vicious little mule (*macho*), gave me as I was sitting loosely in the saddle a hoist which made me ask the day o' week for an hour afterwards; and briefly, I never rode a hundred miles without my monture kissing the ground once, twice, or thrice. In one point, however, the quadruped mule surpasses the biped. The former looks up to the nobler side of the house, and will follow the lead of a horse rather than the wake of a brother bastard. The latter learns—curiously enough the father's family teaches him the lesson—not to do so.

Our little caravan consisted of two "tropeiros" or muleteers, the *almocreves* of Portugal, and *arreiros* of Spain. Miguel was the driver (*tocador*), whilst Antonio acted guide. There were three baggage mules, including "Falloux," the scapegoat, and Estrella, the "star-faced," an incarnation of vice, ready to kick the hand that fed her. They had the old Brazilian packsaddle, described in detail by Mr. Luccock and Prince Max., girt on by skilful hands over masses of heterogeneous packages, stuck as if plastered. They will value the comfort of good loading who, by engaging some dunderhead European, have lost all patience and alternate half-hours. The riding beasts were "Roão" the chestnut, "Machinho," a small grey mule, "Estrella No. 2," a good sun beast, and Camandongo the "male mouse," stout and willing, old, and therefore tolerably safe. Thus each had a single remount: nothing like the change after a few hours in a hottish sun. There were three horses, "Castanha" the bay, "Alazão" the roan, and an old white guide (*madrinha*) named "Prodigio," the sole prodigy being its age. All were in good condition, with sound eyes and teeth, frothing their bits to show their spirit; there are no "parrot mouths," and there are few shiny places upon their backs. "Lombo limpo," says the proverb, "bom arreiro." †

* *Pranchear-se* is the Brazilian term.

† "Clean back (shows) good muleteer."

A word before leaving Barbacena. The observations of M. Liais found no difficulty in running a line of railway viâ this city to Santo Antonio de Rio Acima and Sabará on the Rio das Velhas; indeed he declares this to be the shortest and readiest road. If so, the dull old town has a future. Juiz de Fôra may be called gay, because it has a daily arrival and departure of the mail. Barbacena is galvanized by a bi-weekly coach, which keeps up a theatre for amateurs and a billiard-room. We are now about to see the outer darkness of places to which mules are the only transport.

THE LINGOT D'OR.

Royal Arms.	N 1470	(1815)	. B
	Toque 22 * * * 4	— 1 — 18	

Length 88 millimetres.
 Breadth 6 ,,
 Thickness 4½ ,,

CHAPTER IX.

FROM BARBACENA TO NOSSO SENHOR DO BOM JESUS DE MATOSINHOS DO BARROSO.*

“S’il existe un pays qui jamais puisse se passer du reste du monde, ce sera certainement la Province des Mines.”—*St. Hilaire*, i. 4.

WE now digress from the most populous part of Minas, which lies almost due north between Barbacena and Diamantina. The direct, or north-west road, about 150 miles, between us and the Morro Velho Mine has been trodden to uninterestingness.† I therefore took a liberty with the mules, and resolved upon making a right angle to the west, with a base of thirty and a leg of ninety miles as the crow flies.

The good Dr. Renault supplied us with letters, not forgetting one for Sr. Francisco José de Meirelles, innkeeper of Barroso, the “muddy” where we intended to night. In this country “recommendations,” as introductions are called, may often prove more valuable than bank-notes. He accompanied us on horse-back for a few miles,‡ and I felt sad when taking leave of him. A man living upon conversation and exchange of opinion, and to whom talk is bliss, he must find Barbacena as it now is, a penance, a purgatory.

* Time and approximate length of stages from Barbacena *viâ* S. João and São José to Morro Velho :—

1. Barbacena to Barroso	hours	5° 30'	statute miles	24.
2. Barroso to S. João	„	7° 10'	„	24.
3. S. João to S. José	„	1° 30'	„	6.
4. S. José to Alagôa Dourada	„	6° 10'	„	24.
5. Alagôa Dourada to Camapuan	„	5° 15'	„	15.
6. Camapuan to Congonhas do Campo	„	8° 0'	„	24.
7. Congonhas to Teixeira	„	5° 0'	„	14.
8. Teixeira to Coche de Agoa	„	8° 25'	„	24.
9. Coche de Agoa to Morro Velho	„	3° 0'	„	12.

Thus the total time was fifty hours expended in covering 163 statute miles: the rate was, therefore, $3\frac{1}{3}$ miles per hour. When I travel alone my men are always mounted, and thus we easily get over six to seven miles an hour.

† In 1825 Caldeleugh (ii. chaps. 17—18). Mr. Walsh (1829) travelled *viâ* S. José. Castelnau was the last in 1843.

‡ This complimentary escort is known as the “despedida,” and as in the nearer east is general throughout the interior of the Brazil.

To-day's march will be about five leagues,* and occupy the usual time, as many hours. Had the road run along the Valley of the Rio das Mortes, the distance between Barbacena and São João would have been shortened, it is said, from forty-eight to thirty-six miles. But the ancients adopted the custom of the savages—a custom with which the African traveller is painfully familiar. They made the ascents and descents as short as possible by taking a bee line, and by disdaining a zigzag. The object, of course, was to strike the plateau as soon as they could, and to keep it as long as possible. The Paulista saying is, "Ride slowly up the hill for the sake of your beast, prick fast over the level for the journey's sake, and ride gently down hill for your own sake." Accordingly, our bridle-path cut over hills and dales covered with thin grass, glowing with light, but lacking the glare of Arabia and Sindh. The horizon was evidently of the same contour, but flattened by distance into knobs and knuckles. The surface glittered painfully at times with *débris* of mica and crystallised quartz; there were ugly descents of white earth, with rolling pebbles, and the water breaches (*esbarrancados*) were of monstrous size.

Antonio, the guide, having declared that he knew the way, lost no time in losing it. At one of many critical turns he broke to the south, and led us to the "Fazenda de Canyagora."† Through a woody bottom, over a bed of carbonate of lime, flowed the little Rio Caieiro, "Limestone Creek," an affluent of the Rio das Mortes. This dolomite, covering sixteen square leagues, sells for 0\$280 to 0\$320 per bushel at Barroso. It is good for building purposes, and the burnt lime fetches 2\$000 to 3\$000 at Juiz de Fôra.

We found two "Campeiro"‡ lads, herders of black cattle, and offered them coppers in vain. They were going in their rags to the Campo—a juvenile taradiddle—they had not time to guide us, but they condescended to show us how to guide ourselves. We

* When speaking of inland leagues, I refer, unless it is otherwise specified, to the old Brazilian, a little more than four English statute miles. Popularly it means an hour's ride. Assuming the animals stride at one yard, and two strides per second—less uphill and more down, or *vice versa* according to the beast—we have 3600 seconds = 7200 strides or yards, 160

yards over the four miles (7040 yards). Concerning the leagues and other measures of length, I have given all necessary information in the Appendix of Vol. II.

† My friend Mr. Copey informs me that the Fazenda in question is generally known as "do Mello," or "dos Caieiros."

‡ Prince Max. (iii. 89 and elsewhere) calls them *Campistos*—an error.

passed a large lime-kiln, and shortly before sunset we made a long descent from the barren highland into a pretty picturesque basin. A bird's-eye view showed an oasis (of Fiction) in the desert. All was bright with *Capim Angola* (*Panicum altissimum*), and with roses and the *Poinsettia*, whose brilliant red bracts, always the highest light in the picture, give it a centre, as it were, and illuminate up like lamps the tints of tamer flowers. The vegetation of the basin ranges between England and India, from the weeping willow, the Sicilian cactus, the orange, and the palm, to the plantain, the coffee-shrub, and the sugar-cane. Nor was the "utile" forgotten; the gardens smiled with yams and various greens. The little village boasts of a church, *Nosso Senhor do Bom Jesus de Matosinhos* (of thickets) *do Barroso*; of a chapel that accommodates *N^a S^a do Rosario*, and of a half-finished square, with the normal two shops of *seccos* and *molhados*—dry and wet goods. The brightly whitewashed tenements are disposed as usual in single lines and scatters. Each has its quintal, or "compound" of flowers, fruit-trees, and vegetables, with a few coffee-plants and a patch of sugar. Such was Barroso when we visited it. Once the *Fazenda do Barroso*, whose last possessor was the *Capitão José Francisco Pires*, it has now become a district in the Municipality of *Barbacena*.*

A curious contrast there was in the beauty and elegance—excuse the word—of this Brazilian village, and the homely, unlovely auburns of modern England and France and of "New America."

We presented our letter to *Sr. Meirelles*, who condescendingly bade us alight,† otherwise we had remained in the saddle. A "dirty-picturesque" mob of muleteers pressed to the door and eyed us as if we had come from one of the "foreign parts" which *Virgil* described. The establishment was the common compound of the third and fourth phases assumed by venal hospitality in a land where every second gentleman keeps open house.

No. 1 is the *Pouso*, a mere camping-ground, whose proprietor

* In 1829, when *Mr. Walsh* passed through "*Barroza*," as he calls it, the place was still a *Fazenda*. Curious to say, in the map of *M. Gerber* (1862), it is placed upon the north or right bank of the *Rio das Mortes*, in this case the wrong bank. In the chart of *M. Burmeister* (1850) it does not appear.

† "Appear:" it would be "indecent haste" to dismount without such invitation, especially at a private house. And here all the honours and ceremonies of the private, are expected by the public, house, whilst the host is at least as exigent as his dwelling.

does not object to let troopers water their mules and tether them to stakes. In the first quarter of the present century travellers were often condemned to nights *à la belle étoile* in these germs of accommodation, which have now become populous villages and towns.

No. 2, the Rancho, represents the "Traveller's Bungalow," lacking, however, cot, chair, and table, Thugs and Dacoits. Essentially it is a long, tiled shed, sometimes fronted by a verandah on wooden posts or brick pillars; at other times with outer walls, and even with inner compartments, formed by *taipa** adobes, or clay and wattle. Here the muleteers unload; the beasts wander undriven to the pasture, whilst the masters build a fire, hang their kettle, gipsy fashion, from a tripod of sticks, strew on the ground by way of bedding the hide covers of the cargoes, and make a smuggery with parallel partitions of neatly-piled panniers† and pack-saddles. The Brazilian poet describes the Rancho—

E por grupos apinhoados,
Em seu centro estão arreios,
Sacos, couros e broacas.‡

It requires the skin of a "tropeiro" to sleep in such places: all swarm with strange, outlandish vermin, which burrow into your flesh, and which make their homes under your nails.

No. 3 is the Venda, or shop, a decided advance, but not "thoroughly respectable." I was once reproved for owing to having enjoyed the opposite extremes of Fazenda and Venda. It is the "pulperia" of the Hispano-American colonies, the village emporium of England, combined with the grocery and the public-house; it sells "a' things," from garlic and prayer-books to gin and rum, cake and candles; sometimes it is double, with

* The pisé of Brittany and puddle of England, found from Devonshire *viá* Dahome and Sindh, &c., to Australia. The way of making it is almost everywhere the same; I will not, therefore, describe the process. When the clay is stiff and contains small quartz pebbles, it forms a good wall. It always requires, however, to be, as the phrase is, well hatted and booted—supplied with wide eaves to save it from the rain, and a stone or brick foundation to prevent the moisture of the ground eating away the base.

† The Jacá is made of the bamboo bark

split and plaited: it is a flat parallelogram containing the sack of salt or coffee, and fitting close to the *cangalha* or pack-saddle. The "broaca" is a bullock's hide softened in water, shaped and sewn into a rude box with cover, and allowed to dry, when it becomes hard as wood. The word is written by old writers *Boroacas*, by the moderns *Bruacas* and *Broacas*. Prince Max. (ii. 365) prefers "boroacas, sacs de peau de bœuf durcie."

‡ "And in the middle, heaped and grouped, are mule trappings, bags, hides, and skin-boxes." (Bacharel, Teixeira).

one side for wet, and the other for dry goods. A counter,* over which swings the rude balance, bisects the length. Between it and the door are stools, boxes, or inverted tubs. The customer touches hat to the proprietor, and is hereupon told to sit down. Behind the "balcão" is sacred ground, admitting to the gynecœum. The shelves of untrimmed wood are laden with mugs, cans, and other pottery, and on both sides with full and empty bottles, upright and couchant. On the floor are salt-bins and open kegs of coarse sugar and beans, a box or two of maize, piles of lard and salted meat—the popular "carne seca," a rope of black tobacco curled round a stick, and tins and demijohns of the local rum. The items are umbrellas, horseshoes, hats, mirrors, belts, knives, long pistols (garruchas), cheap guns, ammunition, and sewing gear—in fact, everything that can be wanted by rustic man or woman. The Venda has usually a room where strangers are accommodated with a large platter† for ablutions, a wooden bunk, a long-legged table, and a low bench.

No. 4 is the Estalagem, or Hospedaria, the inn where we shall lodge at Marianna; and No. 5, and last, is the more pretentious hotel, or 'ôtel, with which the reader has made acquaintance at Barbacena.

We had omitted the advisable precaution of sending forwards to order dinner, and two hours' delay converted it to a supper. The menu was the usual thing. The flesh is represented by a hunch of roast pork, which no stranger in the Brazil will touch after he has seen the behaviour of St. George's pet animal. The bazar pig of India is a better specimen of education. There is usually a tough stewed fowl, *au riz*,‡ with head and neck, giblets and four shanks, but wanting probably a wing and a thigh. Œufs au plat§ are common as pigeons and omelettes in Italy. The Brazil, like England, is a land of one sauce, red and yellow peppers|| gathered from the garden, and bruised in broth and

* Balcão.

† Gamella, a hollowed bowl of some soft tree, generally the Gamelleira (*Ficus doliaria*), at times six or seven feet in circumference. See Chap. 21. sect. 2, for a further notice of this popular article. In the house it is of various shapes, round, square, and oblong, deep and shallow, and it much reminded me of the platters which I saw at Harrar in East Africa.

‡ Gallinha ensopada, usually tolerably done, but always a "sudden death."

§ Ovos estrellados; thrown upon a hot plate, copiously larded, and often swimming in brown liquid.

|| Molho de pimenta (capsicum). Of these there are many varieties known to, and cultivated by, the aborigines; the "System" mentions ten species. The best is probably the yellow-skinned rounded *Pimenta de Cheiro* (of perfume, *C. ovatum* or *odoriferum*, also *Juá*), superior, in my opinion, to that of Nepal. There is also the *Cheiro Comprido*, or long smeller,

limejuice. The feijoada, locally called "tutú de feijão,"* is the staff of life in the many places where wheaten bread is unprocurable, and corn bread is unknown. I have heard an Irishman call it a "bean poultice," and, 'faith, the unsavoury simile fitted exactly. It is a mixture of farinha with haricots, flavoured with toucinho (cutis and suinus), the oil and cooking-butter of the country. This adipose tissue of boned, disembowelled, and un-fleshed pig, slightly salted, is hygienically well adapted to beans, combining carbon with nitrogen; unfortunately it enters into almost every dish, and it does no good to the digestion of "Young Brazil." The same may be said of many places in the Western United States and in China, where people are almost made of pork. Apparently it is a favourite food in young lands. In Europe we are told during many centuries the only animal food generally used was pork; beef, veal, and mutton being comparatively unknown. The rice is sensibly cooked. Brazilians know the knack, whereas the English and the Anglo-Americans still persist in eating the husk.†

For dessert‡ appears a tureen-full of canjica—boiled maize, and sweetmeats, of which all orders and ages are exceedingly fond. Canjica is "kitchen'd" with brown sugar, with quince conserve,§ or with guava cheese.|| The two latter are served up in wooden boxes, or in flat tins. They are universal favourites, supposed to facilitate digestion, and they accompany salt cheese,

and the Cheiro doce. Strangers often bring with them from Europe a nursery prejudice against this excellent stomachic, superior for opening the appetite to all absinthe. Prince Max. was wiser: "Dans ces forêts humides . . . cette épice est excellente pour la digestion, et peut aussi passer pour un fébrifuge très salutaire" (iii. 6). So is Paul du Chaillu (Ashangoland, chap. 3.) "The pepper itself I believe to be a very useful medicine in this climate, for I have often found benefit from it when unwell and feverish, by taking a moderate quantity in my food." Brazilians are exceedingly fond of pepper, as were their Indian predecessors, who used "muita somma de pimenta." Amongst the ten well-known kinds we find the Pimentão, or large pepper (*Capsicum cordiforme*, or in Tupy, Quiyá-açú, also Pimentão comprido), much cultivated by the savages. Yet the Brazilians do not seem to enjoy the large boiled pods of which the Spaniards are so fond. In old

books we find many native names for the different species: Pimenta-poca, Poca doce, Quiyaqui, Quiyá-apuá (corrupted to Cujepia), Quiya-Cumari, or Cumbari, Quiya-açú (corrupted to Cuihemoçu), Inquitai, Pesijurimu, Sabaa, and others. The generic name in Tupy was Quiya or Quiyaha; in Carib "Axi;" in Peruvian "Api."

* The Feijão (*Phaseolus vulgaris*) here takes the place of the Egyptian Fúl (Mudammas, etc.) It is of many kinds, mulato, fidalgo, preto, rôxo, incarnado, cavallo, and so forth.

† I have explained all this in the "Lake Regions of Central Africa," i. 393, yet the British rice-eater still feeds like the Prodigal Son in distress.

‡ Sobre-mesa, literally on the table.

§ Marmeláda, not to be confounded with our marmalade.

|| Goiabáda, from goiába, whence our guava (*Psidium pyrifera*).

even as cheese and pudding go together in ancient Yorkshire. The wine, where there is any, calls itself Lisbon, and is dyewood, molasses rum, and half a tumbler of the worst juice of the Barcelona grape; the popular name for it is "caustic." Sometimes there is Bordeaux, and then we may inquire, as did the Teuton of his ecclesiastical host, "Senhor Batre, esde e binho ou binakre?" Every feed invariably ends with a cup of coffee, not "water bewitched," as in England, but, though rich, badly made. The bean is burned to blackness, as in Egypt; it is pounded, not ground, as in England; but it is always strained, boiling water being poured through the charged bag. Moreover, the popular sweet tooth makes it into a syrup with treacly Rapadura, and "Rapadura—coisa dura,"* justly observes the Brazilian Mr. Merryman. Of course there is as little sitting after dinner as in Utah or a little Russian town.

Such is the Jantar (dinner), the prototype of Almoço, or breakfast. The latter, however, in the better inns ends with a *sobre-mêsa* of tea and café au lait, the milk always scalded, with bread, or that failing, with biscuit† and Irish butter. The people are like King George I., who preferred his oysters stale, and the good citizens, who love to "taste" their fish and eggs, complain that the fine fresh butter made by the Germans lacks flavour, and I have seen many a man temper it, as Suez people do the Nile water, with a pinch of salt. This adjunct to the minor meal reminds me of our "fasts" at Oxford, where the day was known by meat plus fish.

My wife was allowed to swing her hammock in an inner room; we passed the night on and under rugs in the verandah. The air was cold, colder than at Barbacena. We had been gradually descending, and a stranger would have expected warmth from this snug hollow. In the Brazil it is the reverse. The first-comers, I have said, when not priests, built dwelling-houses which afterwards became villages, towns, cities, in bottom-

* "Rapadura, thing t' endure." The word means "scrapings;" the thing is a preparation peculiar to South America, a brick of uncrystallized sugar from which the molasses has not been drained. The word in Peru is Chancaca or Raspadura (St. Hil. III. ii. 266), where it also means sugar with the syrup expressed from the clayed or cured stuff, and allowed to drain or drop into a vessel, being thus cast like

bullets. The traveller must use it in the far west of the Brazil. Its sole merit is that of being very portable. I never saw it in the United States, or in other sugar-growing lands.

† Generally Rosca, our "rusk," too often resembling the "rock of ages," as the war biscuit was called in the United States.

lands, where water for mills (" monjolos ") and home uses was near and plentiful. Evaporation being excessive made the hollows rawer than the heights by night, and as the sun is not yet coloured German-silver in the Brazil, the cold was followed by the other extreme. A small difference of altitude here determines the worth or worthlessness of landed property. When men say that the soil is " cold " they mean that it is low-lying and subject to frosts, which destroy coffee and sugar : it may be geologically the same as its neighbour on the other side of the hill, yet it is unfit for any but such pauper culture as cotton and cereals. Long ago Theophrastus* observed that it freezes less on hills than on hills, and it is an old remark that the ascent of warm air preserves vines and other plants on heights when they would perish in the valleys.

* Theophrastus, v. 20. I quote from p. 74 of a valuable book which was obligingly sent to me by the Editor, " Essay on

Dew," by William Charles Wells. Edited by L. P. Casella, F.R.A.S. London : Longmans, 1866.

CHAPTER X.

FROM BARROSO TO SÃO JOÃO D'EL-REI.

“Of all inventions, the alphabet and the printing press alone excepted, those inventions which abridge distance have done most for the civilization of our species.”—*Macaulay*.

RISING before dawn on the next day, we found from the blood-clotted hides of our animals that they had suffered severely from the vampire (*Vespertilio Naso*, or *Phyllostomus Spectrum*), a *Phyllostom*, locally called by the generic name of “*Morcego*” *Andira* or *Guandira*. These big ruddy-brown bats, of ghostly flight and cannibal tastes, are confined to the American continent, and they unaccountably prefer particular spots. I found many of them in the island of São Sebastião (São Paulo), where there is no cattle-breeding. They seem to select the neck, shoulders, withers, and hind-quarters of animals,—in fact, to attack where they can least be disturbed.* When a “raw” exists it is chosen before other places. The muleteers declare that the phlebotomy does no harm. I remarked that it always enfeebled the patient. In São Paulo and Minas no case of a man having been bitten by the “ugly spectre-bats” came under my notice. They did, however, much damage to the earlier European settlements in the New World. *Cabiza de Vaca* (1543) was wounded by the leaf-nosed maroon-coloured monster near the Lake *Xarayes*. Messrs. *Bates* and *A. R. Wallace*, and my excellent friend *Mr. Charles H. Williams*, of *Bahia*,† suffered in person on the *Amazons*, where the *rhizophyll* appears to be decidedly anthropophagous. *Koster* mentions the use of an owl-skin to preserve animals from the leaf-nose.

The mode of the vampire’s attack has of late years become

* *Southey*, i. 144, relates that they bit the ears of horses and greatly terrified the animals. *Prince Max*. (ii. 61), never saw men bled by them.

† All his party of three were phlebotomized in the big toe during a single night.

Mr. Williams felt the bite of the brute, and found a punctured wound about one-eighth of an inch in diameter.

the subject of debate. The wound is softly and skilfully inflicted—I never saw my horses or mules terrified by it. Prince Max. asserts before the doubting days, “Ce vampire (*Phyllostomus*) fait avec ses dents un grand trou dans la peau des animaux.” Gardner believes the puncture is made by the sharp hooked nail of the thumb. Lieutenant Herndon thinks that the tusks bite, whilst the nostrils are fitted for a suction apparatus. Others trace the wound to the papillæ of the tongue, an organ of action. The armature of the jaw, however, speaks for itself. It must be like a Vision of Judgment to awake suddenly and to find upon the tip of one’s nose, in the act of drawing one’s life-blood, that demonical face with deformed nose, satyr-like ears, and staring fixed saucer eyes, backed by a body measuring two feet from wing-end to wing-end. No wonder that it suggested to the simple savage the subordinate fiend “Chimay,” who thinned him by draining the sap of life.

We set out at 4:30 A.M.—the latest time that should be allowed even at this season—when nothing injures mules so much as travelling in the post-meridian sun. The bridle-path led over the same style of Campos, gleaming yellow with coarse low grass, and perfumed with the hardy wild rosemary.* Even the gramens had lost the culms of fructification seen below the Mantiqueira. Everything except the sun told us that mid-winter was at hand. We forded sundry veins, all running northwards to the main artery: near one of them we enjoyed a roadside breakfast, and we persuaded the tropeiros of a neighbouring gipsy camp to refresh us with coffee. We might easily have fed at the half-way ranch at the Rio Elvas (P.N.)† Here is a bridge in the style of ancient Minas, with central ridge, huge balustrade, and roof of ponderous tiles.

As we trudged along slowly in the fiery sunshine, Ollaria and other out-stations, nestling white in the cool verdure of the hollows, made us sigh for their shade. At noon we saw with a thrill of pleasure far below the Valley of the Great River of the Murder-deaths,‡ whose sources we passed in the Mantiqueira Range, to the south-east of Barbacena. Here its valley, even at this dry season, was much cut up with water: during the rains it

* Rosmarinho do Campo, a Lantana (?)

† Or Rio do Elvas, popularly pronounced Ervas; hence some travellers write it “Hervas.” Can it be the “Widasmaoth,”

which Mr. Walsh (ii. 227) places near Barroso?

‡ Rio das Mortes Grande and Pequeno.

must be a lake. A little further on it will receive a southerly influent, the Lesser Rio das Mortes, and the two anastomosing west of S. João, will form the true Rio das Mortes. This, again, falls into the Rio Grande, also called the Paraná, being the head-stream of that mighty artery, and dividing the Provinces of São Paulo and Minas Geraes.

About six miles to our right rose the craggy lines of the S. José mountains. Far to the left was "St. John of the King," bristling with a dozen churches, spread like a white sheet upon a hill-side, grim and jagged as the Togi's bed. Under our feet, upon its little river-plain lay the Arraial* de Matosinhos, a charming suburb, distant a mile and three-quarters—more exactly, eight hundred Brazilian fathoms—from the city. We passed up the neat principal street, and entered a main square formed by the best houses, each with its flower garden, set off by a few coffee shrubs of prodigious size, and the richest verdure.† There is no priest, but the church of the Espiritu Santo appeared, externally at least, in good order. Here during its fête pilgrims flock from the country for the spiritual refreshment of praying through the day and night.

Matosinhos stands where once stood the far-famed "Capão de Traição"—Tree-clump of Treachery—a term dating from the days which named its stream "River of the Deaths," or rather murders. At the end of the seventeenth century, the Paulistas, especially the Taubatienses, or people of Taubaté, a Paulistan city in the Valley of the Parahyba do Sul, found gold diggings in most parts of their captaincy, now the Province of Minas Geraes; and they incontinently claimed all the rights of discovery. One of their Poderosos, named Manoel de Borba Gato, arrogated to himself the title of Governor of the Mines, and he was supported by his countrymen. They determined to expel, some say to massacre, the Forasteiros or Foreigners, meaning the emigrants

* Arraial (Arrayal), or Real, means properly the royal head-quarters in a camp. Thus Camoens (iii. 42)—

"Já no campo de Ourique se assentava
O arraial soberbo e bellicoso."

† Now on Ourique's field was pitched and manned

The Lusan 'campment prond and bellicose."

Thence it came to signify a field of battle. In Minas Geraes the word was applied to

the povoação, or village of olden days, because it was mostly fortified, and it was generally in the presence of the Indian enemy.

† In these places, which are usually well watered, if not manured, fruit-trees and shrubs thrive exceptionally. Café de Quintal, for instance, means something much more luxuriant than what is grown in the open.

from Portugal and Europe. The latter, nicknamed the "Pharisees of Minas," chose as their Governor the Portuguese Manuel Nunes Vianna (Viana), "White Man and European," and thus began, in 1708, the celebrated wars of the Caboclos* and Emboabas†—"Red-skins and Feather-legged fowls."

Vianna, then the "Grey-eyed Man of Destiny," sent from Ouro Preto a thousand miners under a blood-thirsty villain, Bento do Amaral Coutinho, to assist his party the Forasteiros. The Paulistas, who were huddled in the Tree-clump of Treachery, were persuaded to lay down their arms, and were foully massacred to a man by the mob of slaves and cut-throats who followed Amaral. The Governor and Captain-General of Rio de Janeiro, D. Fernando Martins Mascarenhas de Lancastro, who succeeded Artur de Sá, went to the Arraial with four companies of troops: he was met as an equal by Vianna of the will of bronze, and he was presently induced to retire.‡ In 1708 the Governor was succeeded by Antonio de Albuquerque Coelho de Carvalho—a man of different stamp. He mastered Vianna, and permitted him to retire from the Mines, and to live upon his property near the Rio de São Francisco. "Whether his [merits were rewarded by the Court," says Southey,§ "is nowhere stated; they are, however, acknowledged in (his?) history." Albuquerque, it is generally believed, pardoned Vianna by order dated August 22, 1709. The King (D. João V.) subsequently revoked this, and directed that both the ringleader, with Amaral and his secretary, Fr. Miguel Ribeiro, should be arrested. Some say that Vianna died at large, others in the prison of Bahia. These civil discords breed

* According to the exact Varnhagen "Caboclo" or "Cabocolo" means "peeled," or "plucked," because the aborigines removed the body hair as the Christian Brazilians used to do, and as Oriental peoples still do. Marcgraff (Hist. Nat. Braz. 268) applies "Caribocas" and "Caboclos" to the mixture of white, negro, and Indian: in this he is supported by Gardner (p. 22). Prince Max. calls civilized Indians "Caboclos" (i. 30), and elsewhere (i. 110) makes the word equivalent to Tapouyas, pure "Indians. St. Hil. (III. ii. 253) asserts that Caboclo or Caboco is contemptuously applied to the pure Indian. On the Amazons, as the "Naturalist" informs us (i. 35), the civilized Indian is called Tapuyo or Caboclo. According to my experience the word now means a man with a mixture of red blood,

and it is applied insultingly, somewhat like our "nigger." Yet I have known a man nick-name himself "Caboclo." Prince Max. (i. 30—1) says that the mixture of white and Indian produces the Mamalucco, the negro and Indian Ceribocos (popularly Cafuz, corrupted to Cafuso), the pure Indians Indios, the civilized red-skins Caboclos, the wild Indians Gentios, Tapuyès or Bugrès.

† Some write Embuaba. It is rightly explained by Casal (i. 235). See Southey (iii. 885). In many parts of the Brazil a "knickerbocker" fowl is still termed "Emboaba."

‡ Local tradition says that Vianna with 4000 men met D. Fernando at Congonhas do Campo, and compelled him, with threats, to march back upon Rio de Janeiro.

§ History (iii. 83).

long-lived results. The Paulistas and Mineiros are cousins; but the two branches are still alienated by the battles for gold on the Rio das Mortes and elsewhere.

Beyond the pretty suburb lay the "Água Limpa," pure as the Neva: well it deserves its name. The pebbly bed is now forded, and during the rains a "pingela," or "pingella," a beam, often an unsquared tree-trunk, oftener without than with handrail, suffices for communication.* Higher up is a broken bridge dating from the days when Matosinhos had a flourishing gold mine: it ended with the bursting of a dyke like the "Sadd El Arem." Reaching the Municipal Palace and Prison, we were arrested by the normal procession on the fête of Corpus Christi; we pulled off our hats and we sat in the sun till it passed.

There was nothing remarkable in the "function." All the Irmandades† Sodalties, or Tertiary Orders, were there,—white men in red cloaks, brown men in green, and black men—naturally—in white. Not wanting were the Anjinhos, or little angels, chits in short crinolines, frilled pantalettes, satin shoes, and fancy wings, all under ten, apparently the *ne plus ultra* of the angelic age, and all learning vanity with a will. There was a profuse waste of wax taper, and very little of art in the images. The principal ecclesiastic bore the Host under an embroidered canopy, and military with music brought up the rear.

These processions were much patronised by Nobrega and the great Jesuit lights of 1850. Doubtless the show, the melody, and the mystery, won many a stray Tupi sheep for the Fathers' fold.‡ These ardent votaries were followed by men who thought with Hosius, "Strip the Church of its pomps and pageantry, and its doctrines will become as the fables of Æsop." The rite presently declined, became a system of farces and masquerades, "irreverent ceremonies, and ridiculous mummeries.§ In these

* The Indians of the Brazil, like those of the Orinoco, made suspension bridges of lianas, woven together in the simplest fashion, and allowed to oscillate above the water. A "hand-rail" of vine or creeper enabled the passenger to steady himself.

† Mistaking this institution, Mr. Walsh (ii. 134) locates at São João two convents at a time when religious orders were not permitted to establish themselves in Minas Geraes.

‡ "Les naturels ne connaissent de la re-

ligion que les formes extérieures du culte. Amateurs de tout ce qui tient à un ordre de cérémonies présentes, ils trouvent dans le culte chrétien des jouissances particulières." Prince Max, ii. 395.

§ St. Hil. (III. i. 100). I use his words, for he was a very Catholic and a "Professor," as far as a scientific man can be. So in the Province of Pasto, amongst the Andes, Humboldt saw the Indians dancing, masked, and hung with bells, round the altar where a Franciscan was elevating the Host.

days it is perfectly and dully decorous, and it subserves the useful purpose of "bringing people together." It combines the promenade, the visit, the pic-nic—in fact, it is the one outlet, the grand parade, for poor human vanity, here so little, when in Europe so copiously, aired. And wherever in the Brazil the citizens have, primo, little to do with the outer world, secundo, little to do at home, there this style of devotion flourishes. At São João we heard the bell-ringing of Oxford: all the day and half the night was made vocal by the "dobrar," slow-tolling, the lever being used, and "repicar," ringing in triple bob-major, when the tongue is hammered with the hand. It was a "furnace of music," a "tempest symphony."

We followed the Praia, or Eastern Quay, stone revetted, whilst the opposite side is not. This *en revanche* has a picturesque bit of aqueduct lately repaired. The Rio de São João, descriptively but erroneously termed by some travellers Rio Tejuco,* flows through the city to the common reservoir on the north-east. At this season it is a film of water trickling down a foul bed, doggy and catty. Like many a once rural stream in England, it wants only breadth, volume, and washing. Two old-fashioned bridges of solid stone, each with three arches of about twenty feet span, cross it: to the east, and near the Camara, is Ponte Novo, looking very elderly, and capped with a cross. Westward lies the Ponte do Rosario.

Seen from its streamlet, São João is strikingly picturesque. The snowy buildings of the northern section spread out, trigon-shaped, upon the Quay; thence, rich in tall houses, massive fanes, and clumps of wondrous verdure and startling flowers, they swarm up their wild and remarkable background of Serra, once the El Dorado, the focus of auriferous deposit. To the left, also lending its foot for the city to rest upon, is the Serra do Lenheiro, said to be 3000 feet above sea-level.† It is ridged and ribbed with that hard talcose slate soon to become so familiar

* Rio Tejúco would mean "mud river." The Tupi (or Língua Geral) "Tyjuca," also written Tijuca, is applied to many places in the Brazil where the first explorers found a bad Tyjucopába or Tyjucopão, in Portuguese atoleiro or lamaçal, a slough or quagmire. The Dict. translates Tyjú "escuma," froth or foam; and Tyjuca "lama," barro podre or apodrecer—mud, rotten clay, to rot. At São João the Rio Tejúco is a

small influent from the north, which, joined by the "Barreiro" from the east, joins the "Rio Acima," the western section of the São João stream.

† Some say 5700—6000. But the city is only 1290 feet (Aroeira) above sea-level, and about 2300 feet below Barbacena. I regret not having made observations for altitude, as the temperature seems to suggest nearly 2000 feet.

to us, the thinnest brownish brushwood, finds place there, and the system looks like a magnified thistle, a vast teazle. To the right is the "Boeáina," or Gap, the water-gate of the River of the Murder-Deaths; and further still, the Serra de São José, a brother of the Lenheiro, walls in the view.

We deposited our very hot and dusty selves in the Hotel Almeida, kept by Sr. Joaquim José de Almeida, and sent our "tickets" to the Capitão Custodio de Almeida Magalhaes, who obligingly insisted upon our "cutting our mutton" with him. Presently, lounging at the doorway, we espied, in the act of riding by, an indubitable British hat—white, massive, and broad-brimmed. Unlike Eothen, but very like other Englishmen in similar circumstances, we took the liberty of asking the wearer's nationality, and when surprise at the sudden process had worn off, we found ourselves sitting and chatting with Dr. Lee, a Kentish man, or a man of Kent. He had married, settled, and spent thirty-three years, "on and off," at São João. Presently he introduced us to Mr. Charles C. Copsy, of Cambridge, who there had known some of my undergraduate kinsmen. He also had passed through the Church; he was a lieut.-colonel of real Brazilian volunteers, seventy-four stalwart youths, well armed and uniformed; moreover, he was Professor of English, geography, and mathematics at the Lyceum.

It was pleasant to fall so unexpectedly upon these two cultivated English gentlemen, to brush up reminiscences, to exchange adventures, and to hear the chaff of our own land. More pleasant still to find that their home habits had not permitted themselves to become Brazilianised. Brazilian is good, and British is good; the mixture, as is said of other matters which shall be nameless, spoils two good things. It much suggests the old saw,—

Un Ingleze Italianato
E il Diavoio incarnato.

Also, "on n'a que trop souvent à rougir des compatriotes que l'on rencontre dans les régions éloignées." And, for the personal kindness of my fellow-countrymen of São João, I can only beg them to receive our heartfelt thanks.

Before ending in sleep the uncommonly satisfactory evening, we may prepare for an inspection of the city to-morrow.*

* I have borrowed freely from the Apon-
tamentos da População, Topographia, e
Noticias Chronologicas do Municipio da

Cidade de S. João Del-Rei (sic), Provincia
de Minas Geraes. Por José Antonio
Rodrigues. S. João D'El Rei (sic). Typ.

When Sebastião Fernandes Tourinho discovered in 1572 the emerald mines which proved to be ridiculous grass-green tourmalines, the Brazilian interior was at once traversed by intrepid bands of explorers and pioneers, mostly Paulistas. The names generally quoted are those of Bartholomeu Bueno da Silva,—by cognomen O Anhanguera, popularly translated Old Devil, and suggesting the Shaitan Ka Ohai of Sindh; his brother-in-law, Antonio Rodrigues; Arzão, of Taubate; Fernão Dias Paes Leme, his son-in-law; Manoel de Borba Gato, before alluded to; and Thomé Pontes. The first lodes and veins* were found in and about the stream now called Rio das Mortes, and the abundance of ores caused the land to be named Minas Geraes—General Mines. Chroniclers delight to repeat that in those golden days a peck and a-half of corn cost sixty-eight oitavas of gold, now = £23; farinha-meal was worth forty oitavas; whilst a horse or a bullock fetched thirteen to fourteen ounces. These prices, they state, effectually killed out all agricultural industry. I should think that the reverse would be the fact.

The Arraial do Rio das Mortes began life as a village in 1684. In 1712 (*alii* Jan. 29, 1714) D. João the Magnificent named it Villa de São João d'El Rei.† On December 8, 1713 (*alii* 1715) its proprietor, the Governor and Captain-General of São Paulo, sent to it the first Ouvidor-Judge, Dr. Gonçalo de Freitas Baracho. By Provincial Law No. 93, of March, 1838, it became a city, the chief place of a Comarca,‡ and the headquarters of the electoral district. In 1828 Mr. Walsh gave the municipality 9000 to 10,000 souls. This figure had risen in 1859 to 21,500, of whom 15,200 were free, 100 were strangers, and

de J. A. Rodrigues, 1859. The author still practises as an advocate. His monographs is one of the many valuable pamphlets which appear in the Brazil: they are little known to the Geographical Societies of London and Paris, and the traveller should be careful to collect them.

* The *vecio* (hardly a pure Portuguese word) is a vein of metal. *Vceiro* means the corpo do metal, the lode; and *veta* is also a vein. The usual word is *veã* (*vena*), e.g. “*veas de quartzos que são os veciros.*”

† This is the only correct way of writing the name; all the others, as *Del Rei*, *Del Rey*, *D' El Rei*, and numerous modifications, are obsolete or erroneous. The Arabo-Spanish article *El* is reserved in Portuguese for *the* king, and it commands

a hyphen: the particle “*d*” cannot claim a capital letter, and the modern Portuguese write *Rei*, not *Rey*, which is now Spanish.

‡ In colonial days the Comarca was a district within the jurisdiction of a *Corregidor*. The latter name is now obsolete, and the chief legal authority is the *Juiz de Direito*, or *Juge de Droit*. Thus also the *Juiz Municipal* has taken the place of the *Juiz Ordinario*, from whom an appeal lay to the *Ouvidor*. The Comarca or *arrondissement* of the Rio das Mortes is composed of the municipalities of S. João, S. José, and Oliveira. The municipalities of a Comarca again are divided into *freguezias* or parishes, and these also into districts (*districtos*).

6200 slaves, an element rapidly decreasing.* There were thirty-nine electors, of whom sixteen were chosen by the city, 300 jurymen (jurados), and 1600 voters. The city is about two miles long from north to south, and contains ten squares, twenty-four streets, and 1600 houses, of which eighty are two-storied (sobrados). The census of 1859 gave it—

Men, free	3,150
Women, ditto	4,650
Foreigners	50
Men, servile	260
Women, ditto	390
Total	8,500

I am unwilling at this late hour to make reflections savouring of Mormonism. But what think you, reader, or what would Milton and Priestly think, of such relative numbers as these in a poorly-peopled country? Is it not a waste of productive power? In fertile Pará feminine births average, I am informed by my friend Mr. Williams, four or five to one masculine. Is it not lamentable to see men blinded by the prejudices of education, thus neglecting the goods the gods provide? Surely it is time for some Ill^{mo} Senhor Dr. Brigham Joven to arise in the land.†

* In 1867 I was told the number of slaves in the municipality is about 1350, in the city 500. This is not unlikely in a pastoral land, where free labour is preferred to the brutal negligence of the African, and whose hands have mostly been sold off to the agricultural districts of Rio de Janeiro, which still calls for more.

† The text may appear paradoxical to those, to the many, who still believe cannibalism and human sacrifice, slavery, and polygamy, abominations per se, the sum of all villainies, and so forth. I look upon them as so many steps, or rather necessary conditions, by which civilized society rose to its present advanced state. Without

cannibalism how could the Zealander have preserved his fine physical development? Certainly not by eating his bat and his rat. Without slavery how could the Antilles and the Southern States of the American Union have been cleared of jungle? White men could not, and free black men would not have done it. Without polygamy, how could the seed of Abraham have multiplied exceedingly? At the utmost they would have doubled their numbers in half a century. In the Old World a return to the state of its youth would be a retrograde movement, a relapse into barbarism. But it is not the same with new lands, which represent numerically the conditions which we have forgotten centuries ago.

CHAPTER XI.

A WALK ABOUT SÃO JOÃO D'EL-REI (SOUTH SIDE).

Hásta los palos del Monte
Tienen su destinacion ;
Unos nacem para santos
Otros para hacer carbon.*

THIS quotation, borrowed from Dr. Rodrigues, refers somewhat vaguely to the past and future of São João. Hereabouts, shortly after the great earthquake at Lisbon (1755), it was proposed to transfer the seat of government. In 1789, as will appear, the patriotic movement in Minas fixed upon São João for the site of their Washington, and Ouro Preto for the University.† Unfortunately, there is hardly a place of importance, or even without importance, in the Mining Province which does not assert its claim to the Imperial Metropolis. I may briefly quote Campanha, Baependy, Minas Novas, Paracatú, Guaicuhy, and even the savage site of the Pirapora Rapid, on the Rio de São Francisco.

In history these things repeat themselves. The Brazil will not always rest satisfied with her present capital, exposed as it is to the attacks of all first-rate maritime Powers, and far more vulnerable than was St. Petersburg before the Crimean war. Presently the oldest claimant, São João d'El-Rei, will see her name once more thrust forward. But I doubt whether the project will be seriously entertained ; the many advantages of

* It may be thus translated :—

Even the tree in forest glade
Each has its several lot ;
While this to make a saint is made,
That fain must warm the pot.

The sentiment is Horatian. Quum faber

incertus scamnum faceret ne Priapum
maluit esse deum.

† Varnhagen justly calls this a great thought, and proposes both a Capital and a University in the Province of Minas. The Brazil can afford to “ wait awhile ” for her metropolis, but she should not be patient about her Alma Mater.

the situation are counterbalanced by its uncentral position.* The Valley of the São Francisco will, one is inclined to prophesy, be in the course of time the chosen seat for the metropolis of the Diamond Empire.

On the shortest day of the year we set out to visit the little city, marshalled by Mr. Copsy; his local knowledge made all things easy. In the Rua Municipal we found the town-house, a large pile, whose ground floor boasted of barred windows, and whose upper front showed imperial arms and Justice in relief; moreover, it was unaccompanied by a shop. In Brazilian towns, as in Spanish colonies, a practical homage is rendered to commerce in almost all the best houses, by converting the lower half into a store. This, the Municipal Palace, was also the common jail—another “institution.” It is somewhat barbarous, a flavouring of jealous Begum Sombre, to hold sessions over the heads of the buried alive; and the demoralizing prominence and publicity of mendicant incarceration should be abolished, and will be abolished, as soon as the municipal funds, at present much depressed, permit.†

The building, stone below and adobe above, is polychrome, and not without beauty. The frontage numbers 110 palms by a depth of 120—not the normal square or the popular claret case. It has five entrances, all iron-railed; the central adit curves outwards, and shows traces of the sentinel. We visited the state-room, 100 palms \times 50, where an iron railing divides, as usual, the jurymen from the aldermen in session. The western ceiling was shored up, confessedly wanting repairs. To the north is the Public Library, open every day, and grimly decorated with the portrait of a local benefactor. Baptista Caetano, Mr. Walsh’s “hog in armour,” is dead; the present librarian is stone deaf, and ignores the number of volumes under his charge. We guessed 3200, and were corrected by the

* São João lies twenty-four leagues south-west of Ouro Preto, capital of Minas, and sixty leagues north-north-west of Rio de Janeiro. It is popularly said that a line through Bom Jardim, eighteen leagues to the south, would reduce the sixty to fifty leagues. They reckon from São João twenty-eight leagues to Rio Preto, the frontier of Rio de Janeiro, and thirty-four leagues to the mine of Morro Velho.

† In 1859 the annual revenue of the Camara ranged from 6:000 \$ 000 to

7:000 \$ 000. The taxes (impostos) were—	
Per Provincial Collectorship	21:000 \$ 000
„ General (Imperial) do.	22:000 \$ 000
Total taxes . . .	<u>43:000 \$ 000</u>

Not including imports and exports dues, and toll bars (Barreiras), which may amount to as much more. Thus, says Sr. Rodrigues, the municipality contributes to the public coffers more than one hundred contos of reis (£10,000) per annum.

“Almanak,” which says upwards of 4000. The mental pabulum consists mostly of old and now hardly legible folios and squat quartos, which have fed the minds of churchmen and the bodies of brocas—bookworms. Here, as in old Rome, the library may sing aloud,—

Constrictos nisi das mihi libellos,
Admittam tineas trucesque blattas.

São João has reason to remember her literary men. One of her sons, Manoel Ignacio d’Alvarenga, wrote the “Gruta Americana,” and, under the name of Alcindo Palmireno, he was a member of the “Arcadia Mineira.”* The second notability was João Antonio Ferreira da Costa, and the third was the satirical Padre Manoel Joaquim de Castro Viana. Add to the three poets a number of “sacred orators,” the “terrors of sin,” and eloquent “echoes of the Gospel.” Besides these, an architect, a painter, and a sculptor are quoted by the curious. There are two choirs, and four “professors of the piano.” Every person of education is, more or less, a musician.

We then proceeded up hill to the Externato de São João. This establishment dates from 1848; it was originally called the “Duval College,” after the founder, Mr. Richard J. Duval, † once an *employé* in the mines of São José, under his cousin, Mr. G. V. Duval, once Director of Gongo Soco. He was followed by a Frenchman, M. A. M. Delverd, and the school was entitled Lyceum by the Councillor Carlos Carneiro de Campos. The site, on the extreme south of the city, is admirable, and commands a noble view. The old building once contained the inspection of gold (Casa da Intendencia), the smelting-rooms (Fundição) ‡, the Residency of the ouvidors, and barracks for the regulars. Wholesome and orderly, it has one serious disadvantage. In these lands, where Art has not yet acquired sufficient power to control Nature, the violent hurricanes that open the Rains, ordeals of fire and water, are dangerously electrical. About four

* He was imprisoned by the Count Resende in the subterraneous dungeons of the Ilha das Cobras, but he must not be confounded with another famous plotter, the lyrical poet, Ignacio José de Alvarenga Peixoto (Plutarco Brasileiro, por J. M. Pereira da Silva, pp. 323—330. Rio de Janeiro, Lacmmer, 1847). See chaps. 35 and 36.

† Mr. R. J. Duval made money here,

became Inspector of Traffic on the Dom Pedro Segundo Railway, and died in 1861. His son is, I believe, established in commerce at Rio de Janeiro.

‡ Mr. Walsh (ii. 138) gives a good and detailed account of the gold melting. He says, however, erroneously, that in old Minas each Comarca had its Intendencia, and its Casa de Fundição. The error has been noticed by St. Hilaire.

years ago the fluid struck the Lyceum; a bolis, like that which entered the church of Stralaund,* split one of the gable ends, and only by a miracle all the eighty pupils escaped. I should suggest £5 worth of lightning rod.

We assisted at the geographical lecture delivered by Professor Copsy, and I supplemented a few remarks upon the subject of Eastern and Central Africa. The ingenuous youths were of the upper ten thousand,—the porcelain not pottery of Society, well-born, well-dressed, well-behaved, and apparently well disposed to learn. Besides this aristocratic establishment, São João has humbler schools. There are two “Minerva Lodges.” One, the *N^a S^a das Mercês*, in the north of the city, presided over by D. Policena Tertoliano d’Oliveira Machado. The second is in a central situation; its inspector-general is São Francisco, and the directress is D. Antonia Carolina Campos d’Andrade.

Our next step was northwards to the Santa Casa de Misericórdia, one of the oldest in Minas. It was built in 1817, upon the site of a Poor-house, by Manuel de Jesus, a Spanish monk, whose funds did not exceed £2. Presently it obtained all the privileges enjoyed by the sister hospital, Lisbon; large sums were left to it, and it added to itself a pretty whitewashed chapel, under *N^a S^a das Dôres*. It has also annexes for the insane, for lepers, and for contagious cases. For a free man the charges are 2\$000 per diem, and 1\$500 for slaves. The sick annually treated are between sixty and seventy.†

We then turned westwards, passing by the Church of São Gonçalo Garcia, belonging to the *Confraria Episcopal de São Francisco e São Gonçalo*, aggregated to the convent of Santo Antonio do Rio de Janeiro. To this Order men of all colours and classes, except the servile, belong. The building is a mere shell, an unfinished ruin of much exposure, and doubtless it will take time to become

* These fire-balls are a frequent form of lightning assumed in the Brazil as in Eastern Africa, and deserving careful observation. At São Paulo I have often seen the electric fluid ascending in the south-eastern sky, and at the height of about 60° projecting a number of globes, like a monstrous Roman candle. Houses are often struck by them, as I have personally witnessed, and nothing but the bolis can explain the mode in which one of my maps was burned.

† In 1864—5 the hospital funds were 95:941 \$ 019. The receipts were 10:357 \$ 654, the expenditure was 7:800 \$ 983, and the balance in favour was 2:556 \$ 871. The *Recolhimento de Expostos (Enfants trouvés)* made 13:241 \$ 000 expended 500 \$ 000, and had a surplus of 12:741 \$ 000. The hospital entrances were 224; the deaths, 51; the cured, 124; and the number under treatment, 49. Of the “exposed” during the same period five out of the ten died.

a decent House of God. Near it is a magnificent Cambucaia tree, resembling a *Eugenia myrtle* four times magnified. Hereabouts also are two noble lofty Sapucaias (*Quatele* or *Lecythis Ollaria*), vestiges of the forest primæval, which once adorned the land. The aborigines used to extract from it a "cauim"* or wine; the leaf reminded me of the two huge Mangos in H.M.'s Consulate Fernando Po. The heavy pot-like fruit, evidently the model of the Indian or indigenous pottery, and so celebrated as a monkey trap, and so loved by the Macaw, renders it as dangerous to sleep under as an African Calabash, a Hindostani "Jack," or a Borneo Doriyan. The mighty arms bear the neat little mud-huts of the Furnarius, here known as João de Barros (*John Clay*, *Merops rufus* or *Turdus Figulus*). The tenements are shaped in miniature like the items of a Kafi Kraal, and the single small entrance is not faced in any particular direction; neighbours often turn their backs to each other, civilized as Londoners or Parisians. This reddish yellow merle often amuses travellers. I have felt in society when seeing them hopping on the road before me, evidently to attract attention, and chattering amazingly, with the apparent hope of a reply. In this case we certainly need not ask J. J. Rousseau † if birds confabulate or no.

As we are about to inspect the show-Church of São João, if not of Minas Geraes, a short sketch of ecclesiastical architecture in this part of the Brazil may be advisable. In former times the first thought of the successful gold miner or speculator was to build and to endow a temple; hence the inordinate number of fanes in the older cities, and the exceeding rareness of a modern building. But though masons were easily procurable, architects were not; consequently the churches speak well for the piety and intelligence of the ancient Mineiro, but badly of his "instruc-

* The T. D. explains Cauim by Vinho, and Cauim tatá, literally "fire-water," by agua ardente. The word is generally derived from Caju (the Cashew tree, *Anacardium occidentale*) and yg water: that fruit supplied the favourite fermentation. "Cauim," like "Koumis," is so differently written by travellers that it can hardly be recognized; for instance, Caoui, Caouy, Caowy, Kaawy, etc. It is a generic term, and applied to some thirty-two different preparations of manioc, plan-

tains, maize, pine-apple, sweet-potato, and sugar-cane, cultivated or wild. Prince Max. (i. 115) compares the chewed form with the Ava or Kava described by Cook in *Oceanica*.

† The last view of this celebrated character, the "eleuthero-maniac," is taken by Sr. Castilho (*Excav. Poet.*)—

"João Jacques (certo animal Que trata de educação)."

"John James, a certain animal who of man's education treats."

tion." The style mostly introduced by the Jesuits is heavy and couthless; it tries to combine the vertical lines of the Gothic with the horizontal length of classical architecture, and it notably fails. The traveller must not expect to find the pillared aisles, the clerestories, the Lady Chapels, the Strypes, or the Chapter Houses of the Eastern Hemisphere. When the building is sub-cruciform, the arms of the transept are concealed by sacristies, corridors, and other conveniences which occupy the space between the double walls. Few also are carved and coffered ceilings; a plain curtain covering the throne takes the place of altar veils, frontals and super-frontals; there are no desk or pulpit hangings, no book covers or elaborate markers—in fact, ecclesiastical frippery shines by its absence.

Nothing like the Pantheon or the Cathedral of Rouen has yet been attempted here. The Church Brazilic is the humblest form of that Palatial Hall of Justice and Sacred Temple which Brazilian enthusiasts derive from the Tabernacle in the wilderness. The integrity of the Palace, however, has been split up into nave and chancel. This plan may be grandiose enough when its dimensions are those of the old cathedral at Bahia. But generally the first effect upon the stranger is that he stands in a large barn, and the effect is very humble when it lacks the physical element of grandeur—greatness.

On the other hand, the Church in the Brazil has the advantage of not requiring any frontage-rhumb; from this region Jerusalem lies north, south-east, or west. It is almost always built on the highest and prettiest site, and there is a fine open space in front for which St. Paul's and Westminster must sigh in vain. The dangerous encroaching system of older cities is unknown, the acid-laden staining atmosphere of our towns is absent, and where not a chimney can be found, the "gathered gloom" of "smuts" is not to be dreaded. The sombre sadness of an iron-railed London square, with its "prison-look," is of course wanting. Finally, the rapid growth of trees, and the admirable supply of water, form natural and artistic ornaments always at hand.

The Church of the Third Order of São Francisco, our old Grey Friars, opposed to the Black Friars or Dominicans, belongs to a brotherhood numbering upwards of 5000 members, mostly males. Like their brethren of the Carmo, they are independent

of parochial jurisdiction; and their accounts are forwarded for inspection to their head-quarters at Rio de Janeiro. The temple is built on the highest part of its square, the approach has a fair flight of stone steps leading to the paved "Adro" or platform. There is a two-beaked fountain fed by the southern hills, and symmetry demands a corresponding feature on the other side. The Cemetery of the Brotherhood lurks behind the church, and the modest Hospicio dos Irmãos da Terra Santa—Hospice of the Brothers of the Holy Land—acts as a foil to the pile.

It has been said that the architect of the São Francisco used no rule but a compass; there is not a straight line save the vertical; the chosen form is oval, the division is into bays, and even the tiled roofs are curved. The dimensions are 240 by 64 palms, and masonry is so solid that the walls contain the flights of pulpit steps, which are some three palms broad. An inscription over the main entrance gives the date of birth 1774. Local tradition declares that it was built over a humble chapel which was allowed to remain, like the old woman's hut under the Palace roof of Anushirwan the Just. What an easy way to win fame! The façade is two-windowed, the pediment is crowned with the two-armed Grecian or Sepulchran Cross, and the tympanum bears Jesus Crucified, St. Francis receiving the Stigmata, and sundry accompaniments. Over the main entrance are the instruments of the Passion, and the "arms," literally and metaphorically, of the "Orago," or Patron Saint; the pyramid is capped by a N^a S^a da Conceição in stone clouds amongst fat-faced cherubs, who display upon a substantial roll,—

*Tota pulchra es Maria, et
Macula originalis non est in Te.*

This shows how early the Iberian dogma, erst so popular in Catholic England, had been recognised by the Brazil, and how readily the "progressive doctrine" of the co-redemptress will be accepted.

The material is excellent, a fine steatite, blueish, and at times of an apple green, which, when the usual bits of octohedral iron are rare, takes a high polish. The sculpture suggests woodwork, with very laborious alt-reliefs; it is the handicraft—Hibernicè—of a handless man, whose labours we shall find scattered throughout this part of the Province. He is generally known as the

Aleijado or Aleijadinho*—the Cripple or the Little Cripple; some call him O Ignacinho, little Ignatius, others Antonio Francisco. His work was done with tools adjusted by an assistant to the stumps which represented arms, and his is not the only case on record of surprising activity in the trunk of a man, or of a woman. Witness the late Miss Biffin.

The "clocheria," is 150 palms high, and of a shape peculiar to and very common in Minas Geraes—parallelograms made quasi cylindrical by pilasters fitting close to the angles; the capitals are quaint, partly Corinthian, partly composite exceedingly. This may be called the "round-square" tower style, and it has nothing but the originality of eccentricity to recommend it. Young peoples, like young people, should learn that genius begins by imitating, and ends by creating; when the latter process precociously precedes the former, the results are apt to be tasteless, ungraceful, grotesque. The capital defects of the belfries are their domes, mere ovens, apparently copied from the white ant's nest or the hut of "John Clay." Both should be pulled down and replaced by something harmonising with the body of the church. They are easily ascended, an iron railing makes them safe, and the peal of four bells is better than usual.

Passing round the polished "Tapa-vento" of neat workmanship, the gift of the good Mrs. Lee, we sight a hall of which Sr. Rodrigues says, "nada deixa á desejar."† Let me softly whisper, coloured glass and finished panels to begin with. The blues and whites look cold and raw, even in this glorious sunshine, and the beautiful cabinet woods of the Brazil are washed and painted to resemble marble run mad. The balustrade of the upper gallery, whence candelabra are hung, is tinted red. And from the centre hangs a huge lustre with some thirty-six lights, much more fitted for theatre than for fane.

The choir, as usual in the Brazil, overhangs the entrance. It is supported by a low, dark splayed arch of such a span, and so shallow a sag, that it merits the title of Manoelesque, as seen in glorious Lisbonian Belem. Syenite enables it to stand despite all the thrust, and the designer's initials deserve a place upon it.

* O Aleijadinho was, I believe, the nickname of a painter, José Gonçalves, who lived at Rio de Janeiro (Pequeno Panorama da Cidade do Rio de Janeiro, por Moreira de Azevedo. Rio: Paula Brito,

1861. Vol. i. p. 77). There is a life of this worthy, but I have never been able to procure it.

† It leaves nothing to be desired.

There are the normal six-side altars.* Of the Sanctuary (Capella Mór) we may remark that chancel and nave have different ceilings. The curved steps and the pavement are of polished stone. The throne and its lateral niches display twisted and festooned columns of white and gold, much cut and carved with painted cherubs of unpleasantly "jolly" expression.† The Retable is the Santíssima Trindade in life-sized figures. The Creator is distinguished from the Preserver by a red cloak and a gold triangle for a crown, a Dove in red and white hovering between them. Underneath is a large figure of N^a S^a da Conceição supported by Santa Rosa de Viterbo, and Santa Isabel Rainha de Portugal. "Tudo," says the guide-book, "infunde respeito." ‡ What would my old tutor Mirza Mohammed Ali, the Shirazi, have said to all this?

The Brazilians have to a considerable extent inherited the art of wooden statuary, in which Ebro-land has excelled the world. Here the chef-d'œuvre is São Pedro de Alcantara, torn dress and all, cut out of a single block. The most worshipful is the Senhor Bom Jesus do Monte Alverne, of which the following tale is told. The Order being simultaneously in want of a statue and of funds, issued tenders; an unknown Person offered himself, and required for earnest-money only the material and the implements of his craft, rating his labours at a fair round sum. In due time he presented his work to the Sodality and disappeared. Sensible men suppose that it was some sinner who took this curious path of penance for the health of his soul. We waited to see the image, but of the Sacristan the only obtainable tidings were "'Sta na rúa," §—a general

* The altars on the right are,—

- No. 1. S. Luiz de França, S. Boaventura (St. Good Luck), Santo Antonio and the Menino Deus.
 ,, 2. S. Pedro de Alcantara, Santa Quitéria and S. Bento (not to be confounded with S. Benedicto).
 ,, 3. Jesus crucified kissing S. Francisco de Assis (the patron of the missionaries who built Californian San Francisco), supported by S. Francisco de Paulo and a Pope. In the base of the altar S. Francisco de Assis, dead.

On the left the altars are,—

- No. 1. S. Francisco de Assis, S. João Nepomuceno and the Holy Family.
 ,, 2. S. Lucio, Santa Bona (who was married), S. Domingo, and S. João Evangelista.
 ,, 3. Santa Margarita de Cortona, S. Roque, S. João and Nepomuceno.

The system of six side altars appears to be general throughout Minas, where some churches are crowded to accommodate them.

† "Serafins de semblantes risonhos."

‡ "All inspires respect."

§ "He is at present in the street," *i. e.*, not at home—unconventionally.

reply to enquiries touching whereabouts in a Brazilian country town.

Further south, and commanding a noble view, is the poor chapel of Sr. Bom Jesus do Bomfim. It is fronted by four palms, and the knobby hill is thinly grown with wild grass* and the smaller Grama,† both yellow with hunger and thirst. By this way, on June 17, 1842, the revolutionists marched in from Elvas and had the city at their mercy. A month afterwards the Provincial deputies met here and solemnly approved of the movement. The acting President made the common fatal error of leaving 500 men under Alvarenga, one of his best officers, to do garrison duty instead of taking the field. Finally, here, on September 7, the Sociedade Ypirunga meets to celebrate Independence Day.

Descending the hill we enter the Post Office, a gauge of civilization in the Brazil. We find one room, and three clerks who never heard of "postal delivery."‡ This is a poor allowance in a city which has, like old Ilchester, a dozen churches, which burns 4800lbs. of wax per annum, and where there is a specialist tailor who makes Padres' clothes.

* Capim do Campo.

† Graminha.

‡ Until very few years past, travellers in the United States made the same com-

plaint. The Twopenny Post in England dates only from 1683, when David Murray of Paternoster Row projected it.

CHAPTER XII.

THE NORTH OF SÃO JOÃO D'EL-REI.

“Não ha uma pedra posta pela mão do homem no centro de suas Cidades, que não exprima uma idéa, que não represente uma letra do alphabeto da civilização.”

Sr. Manoel de Aranjó Porto Alegre.

WE completed the circle of the northern town by visiting our compatriots in the Rua da Prata, the local Belgravia, and the best street in the city. They loaded us with small presents, the *Balanus tintinnabulum*, and specimens of gold from the old pit, magnetic iron, and water-rolled jasper, the true diamond formation of Bagagem.* We carried off a valuable prescription, which I have called Dr. Lee's pills,—a single seed of the *Ricinus communis* taken every third hour, the third being generally the colophon. He deserves a medal from the Humane Society for making so easy what is to some almost impossible. We were shown the “*Azeitona da Africa*—African olive tree—a shrub fifteen feet high, with a tea-like flower and dome-shaped foliage. It produces at all seasons round capsules containing some five three-sided almonds, about the size of a quarter hazel nut: proportionally they are more oleaceous than the *Palma Christi*.† A quarter of a bushel gives five bottles of clear odourless oil, fit for culinary purposes.

We also saw the Brazilian copal, of which there are large deposits in Minas and São Paulo; these came from near Oliveira, sixteen leagues to the north-west. This “*Brêo*,” or pitch as it is vulgarly called, is the produce of extinct forests, composed of various *Hymenææ*, and semi-mineralized by heat and pressure. Like that of East Africa, it shows the “goose-skin,” or imprint of sand; it often contains flies, and bits of bark; it is

* Dr. Couto named the place Nova Lorena in honour of his patron, but this was not endorsed by the people.

† I saw only one shrub in the garden of D. Maria Benedicta, and did not recognize it as an African growth.

affected by spirits of wine, and it almost dissolves in æther and chloroform. This most durable of varnishes was exported to Europe early in the present century, before the African coasts, east and west, supplied an article preferred by the trade. It will again appear in our markets when the labour-market in the Brazil shall become moderate. The aborigines used to make from the live-green, or raw copal—the “chakazi” of Zanzibar—“labrets,” or lip ornaments of the brightest amber colour; they were subconical cylinders, a foot long and of finger thickness, a hollow tube of bamboo thrust into the tree serving for a mould. They were fixed by a diminutive crutch to the lower lip, and they hung down like pump handles to the wearer’s breast.

We were also shown specimens of indigenous Vanilla, prepared by our hosts. The pods are strung upon a line, hung to dry in the sun and air every day, but not till too dry; twice, with an interval, the oil of the “Azeitona da Africa” is applied by means of a feather. Some split them and insert sugar or salt. This valuable growth has long been known in the Brazil; a colonial law of 1740 forbids it to be cut. The author of the poem “Caraturú,” first printed in 1781, sings of it (Canto 7, st. 47)—

A baunilha nos sipós desponta,
Que tem no chocolate a parte sua :
Nasce em bainhas, como páos de lacre,
De um suco oleoso, grato o cheiro e acre.*

But whilst the Spaniards exploited Vaynilla (*Epidendron Vanilla*), even in their age of gold and silver, the Portuguese, especially the Paulistas and Mineiros, systematically neglected it, and our popular books ignore it. Yet the plant grows wild in the greater part of the intertropical Brazil, and in places perfumes the air. It seems, therefore, to be reproduced without art.† The pods given to us at São João were large, fleshy, and very dark; they preserved their characteristic fragrance for months.

We resumed our way over the Ponte do Rosario to visit the Southern city. To our left are the ruins of “São Caetano,” a church which fell in or about 1864, and which has not been

* “In liana-shape hangs the vanilla, which takes her place in chocolate. She is borne in sheaths, like sticks of sealing wax, with an oily juice and a grateful pungent smell.”

† Prof. Morren of Liège proved that the reproductive organs of the *Vanilla planifolia* have peculiarities which require artificial fecundation; in Mexico this process is effected by an insect.

restored. A hopeful sign! That old saw, the nearer the kirk the farther from grace, is of general significance, and throughout the Brazil, the Age of Faith must be followed by the Age of Work; moreover, roads will build churches, but churches will not make roads. The peculiarity of that temple was a chancel—o altar mór—much larger than the nave. A certain Guardamór, or local Commandant, commanded the architect to make it so, and silenced the objectors of “irregularity” with “Tudo quanto é mór, e maïor.”* The same church bore the insolent inscription, “O Rey depende de nós, e não nós delle,”—“The king depends upon us, not we upon him.” My authority remarks hereupon, so prodigal of fidalguia or gentility were these men who, mostly arrant roturiers in the Old World, purchased titles and “founded families” in the New.

We proceeded up the Rua da Prata—with difficulty. There is sometimes a raised sideway in the flagged streets, but both street and way are equally atrocious. The black kidney-shaped cobble-stones† are as slippery as they are hard, and the new comer’s gait suggests that of one practising hop-scotch. The effects upon the hallux and the digit minim of the São Joã-nensis must be sensible—and might not all or much of the evil be remedied by a few cart-loads of gravel, or well bruised macadam? Of course not a wheeled vehicle is to be seen; “carriage people” must content themselves with an old-fashioned sedan chair, or a “bangué,”‡ an overgrown palanquin carried by two mules. *En revanche* the city is well supplied with water, and if money were expended every square and street could have its fountain. At present there are three large Chafarizes, and springs whose waters men prefer, are still scattered about the neighbourhood. Some, we were told, have disappeared, and the rains, which as usual in these Highlands of the Brazil, formerly began in August, now defer their break till the end of November—the cause is probably disforestation.

We find ourselves thoroughly well *morgués* by the juvenile population; stared at with ten-Cornish power; we have our por-

* “Whatever is greater must be bigger.” It contains an untranslatable jeu de mots. The same idea, expressed by *grand* and *gros*, passed between Napoleon the Great and his librarian, when the latter objected the bigness of a volume.

† Pedras de ferro.

‡ The word is the Hindostani “Banghi.” The article is the Takht-rawan of the Meccan pilgrimage, of humbler form and without camels. I have published a sketch of the camel litter in my “Pilgrimage to El Medinah and Mecca” (vol. i. 305).

traits taken mentally, as if each pair of eyes belonged to a turn-key. At Barbacena the youth prospected us open-mouthed; here they furthermore protrude the tongue, not wantonly, however, but in mere wonder. The citizens are described as high-spirited, intelligent, fond of study, and anxious for information; the curiosity of the juniors promises well,—without curiosity there is no enquiry. We remarked sundry scattered Ermidas, or small oratories. On the other hand there is no fixed market, and the *Quitanda*,* or *res mercatoria*, is exposed in the usual “*Quatro Cantos*,” or place where four streets meet. The tailors’ favourite place is on the sweet shady side of the way. This we understand when told that for the last four years the minimum of temperature has been 42° (F.) and the maximum 88° (F.) Many houses were to let, and there were signs of depreciated property at São João, since the end of its second and last aurea ætas. A “*palacete*” built for 5000*l.*, at a time too when labour averaged less than half its present price, now sells for 750*l.* But here as elsewhere, there are three distinct estimates; viz., that of the buyer (−), that of the seller (+), and that of the appraiser (± or =).

Sighting the *Nª Sª do Rosario*, we did not require to be told that it is the especial worship-place of the “*Homo niger*.” It shows tawdry coarseness in colour and form; there are no campaniles, the last belfry having been pulled down to prevent its coming down; a silver lamp, weighing 900 ounces, lately stolen, and probably by one of the brotherhood, has left the order poor. The Hamites have a better cemetery than church; over the doorway of the well chosen situation is a skull, not dolichocephalic as it should be, based upon the distich,

Eu fui o que tu es,
Tu serás o que eu sou. †

to which we anthropologically demur.

At the wall base of the *Rosario* we were shown a “*Deusa Astréa*,” or figure of Justice, in stone, half decapitated, and

* In the Bunda tongue *Kwitanda*, by the Portuguese written *Quitanda*, is the market-place; and *Standa* is explained as *venda*, *venditio*, also *Feira*, or emporium; thus, “to the sale” would be somewhat like the “*Eis tén polin*,” which became *Stamboul*. In the Brazil, *Quitanda*, is not the site of

sale, but invariably the thing sold (*mon marché*, as the French cook says) and “*Quitandeira*” is the woman who sells it.

† “I was what thou art: thou shalt be what I am.” São João has not yet established a branch of the Anthropological Society of London.

lying upon the ground; this elicited some small wit. Presently we reached the Igreja Matriz, whose patroness is N^a S^a do Pilar, and which unites the brotherhoods “dos Passos (the Passion), do Sacramento, da Boã Morte, de São Miguel, das Almas (the Souls, *i. e.* in Purgatory), and de Santa Cecilia.” I will spare description of it after São Francisco. The building dates from 1711, except the modern façade, the work of Sr. Candido José da Silva. There are six side chapels and one upstairs for the sacrament. The high altar is, like the two pulpits, of old wood thickly gilt, and its ceiling is gilt, painted and panelled, whilst that of the nave is the simplest tunnel or half barrel; and, curious to say, the temple is finished. As the Provincial Government votes small annual sums to the “Matrizes,” the latter generally want a last touch.

We rested in the house of the Latin Professor at the Lyceum, Dr. Aureliano Pereira Corrêa Pimental. That high literary tastes are not extinct in São João, may be proved by the fact, that this gentleman is teaching himself Hebrew and Sanskrit. He kindly gave me the satires, epigrams, and other poems of Padre José Joaquim Corrêa de Almeida,* and he recommended to me for translation the Assumpção of Frei Francisco de São Carlos.† Some noble traits are recorded of the Professor. I will spare his modesty the pain of seeing them in print; but there are few men with more family than substance, who will unasked reduce the interest upon an inheritance from fifty per cent. to five.

The end of our long peregrination was to the church of N^a S^a de Carmo, administered by the Third Order of that invocation; its principal benefactors were the Barão de Itambé and the late João da Silva Pereira Gomes. The façade ornaments of cut steatite, with fanciful initials and cherubs worked by *the Cripple*, the round-square towers with composite pilasters, and the internal consoles and columns were those of São Francisco. Its interior was being refitted with cedar wood, cut by a self-taught man, Sr. Joaquim Francisco de Assis Pereira; it will

* Rio de Janeiro, Laemmert, 1863.

† A Assumpção da Santíssima Virgem, now a Brazilian classic, published Rio de Janeiro, 1819. The author was born in the Franciscan Convent of the Immaculate Conception, August 13, 1763, and there died,

or rather exhausted himself by mortifications, on May 6, 1829. It was his object to mix, with praises of the virgin, descriptions of his “beautiful country” (*nosso bello paiz*), and he has certainly succeeded.

assuredly, despite all our deprecations, be whitewashed and gilt. Pity that routine forbids it to be left au naturel; the theatre should be as brilliant as possible, but the dim religious light far better becomes the *delubra deorum*.

The Terceiros (Third Order) of the Carmo, have housed their dead better than their living, in above-ground catacombs some eighty feet west of the church. The square cemetery measuring 400 palms in circumference, with walls 28 palms high, has good grated doors,* with the initials of the Portuguese artist, J. J. F. (Jesuino José Ferreira). A small mortuary chapel fronts the entrance, the interior has cloisters like the Campo Santo of Pisa in miniature, and in the thickness of the walls are tiers of catacombs, family vaults apparently often wanted.

We had worked like horses through the livelong day, and we were only too glad to house ourselves. Professor Pimental dined with us, our fellow-countrymen were also there, and the result was a highly satisfactory symposium with a musical clooping of corks. Rare indeed are they—these *noctes cœnæque deûm*. We separated as the small hours chimed, promising to breakfast at Matosinhos on the morrow.†

Before leaving São João I ascended its Serra of notable memory, under the guidance of a Rio-Grandense, the Capitão Christão José Ferreira. There is a fine bird's-eye view of the city at the top of the step-flight, some 150 feet long, leading to the Capella dos Mercenários, whose confraternity, black and indigenous, is entitled N^a S^a das Mercês. From this place on the rough slope we could see the General Cemetery crowning the hill on our right, the old Matriz below, with the northern city clustering around it, and bottoming all the rivulet that

picciol fumicello

Lo cui rossore ancor? mi raccapriccia,

* "Ramagem," our "ramage"—branchery.

† Future travellers, who have more leisure than we had are advised to visit the fall or rapids of the Carandahy river, and the "São Thomé das Litras," eighteen leagues to the south-west, and nine leagues from Campanha. It is described as a little town, built upon the serra of the same name. The literary name comes from a rock within sight of the square, and in-

scribed with the letters S T (São Thomé). The educated at the spot declare that this and other curious shapes, especially an ounce perfectly outlined, are produced by decaying roots and vegetation. The material, however, is laminated sandstone, elastic or non-elastic (Itacolomite), and the infiltration of oxide of iron produces between the slabs these dendrites. I have seen them in railway cuttings near São Paulo.

whilst on the mound opposite, the show-church, São Francisco, pride of the southern quarter, completed the prospect.

Thence, ascending a jagged hill, where building stone was being blasted, we sighted the ancient gold "diggings." This was the true El Dorado of El Dorado, the focus of the auriferous foci, all gashed and pierced for gold, with pits, fodinas, and quarries, now filled with sand, and broken down by weather into ravines which drain the Serra at right angles. The birth-place of the ore was the upper rock-ridge; thence it was weathered into the lower levels. There was also a formation called Jacutinga, of which more hereafter; suffice here to say, that it is 75—84 per cent. of micaceous iron, based probably upon specular or oligiste, with free gold in lines and potholes. To our left lay the *N^a S^a do Monte*, a hideous chapel, like the colonial faues of modern Spanish colonies, double windowed (two red shutters being the windows), single doored, and suggesting a noseless face. Near the *Igreja do Carmo* we found no traces of the large muddy pool, or water-pit. At the quarry bottom there, says Mr. Walsh, the citizens used wistfully to peer for drowned and buried treasures, and we asked in vain for Dr. Such's tank. After inspecting the water-works we returned "home," *viã* the *Rua da Alegria*, "of gladness," which till lately bore, said our guide, the "less honest" name of *Rua da Cachaça*, or Rum Street. Thus, *chez nous*, Grass Church Street became Grace Church Street.

We are about to visit the "St. John Del Rey Mining Company (Limited)," which here began its operations; and these we may prospect *in situ*. Its birth date was April 5, 1830, and on May 4 it sent from Liverpool to Rio de Janeiro nineteen men, under their commissioner, the late Mr. Chas. Herring, Jun. The contract* gave permission to work the mineral grounds immediately north of the city. The deposits were found in a great lode parallel to a valley 1320 yards long by 150 broad, and in small veins perpendicularly offsetting from it. The native workings had consisted of an open trenching,† and their miners had opened at Dr. Such's tank an irregular quarry 110 feet deep. Their pumping gear of bucketed wheels, each worked by eight

* As security for the gold duty being paid, the licence required a deposit fund of 50 contos of reis in Brazilian apolices or Government bonds, to be used by

the Imperial treasury without paying interest. These were sold in 1834 for £3,713 13s. 11d.

† *Talho abero*.

or ten men, had failed, and the pit was soon filled up with mud and water to within thirty feet of the edge.

In August, 1830, an open-cut, adit-level, faced on both flanks with stone work, was begun from the rivulet side to the east. It proved the main lode, whilst its course cut the cross-veins below the depth reached by former miners. Moreover, it drained the surface water deposited during the rains. In those days the dry season above ground began in April, underground in July, and this gave but four clear months. The "shaft of St. John" was sunk about the same time in favourable ore ground, west of the tank. On the east was commenced a second shaft for sump or drainage. Both served for ventilation, and were provided with "whims" or "gins,"* for pumping and drawing stuff. Dams were erected to secure washing during the dries, and dwellings, store-houses, offices, and other "surface-works," were put up. The superintendent and mine agent obtained rights to water courses, and then commenced the normal operations of blasting, pulverizing, and fanning in the Batêa,† followed by the more scientific process of smelting and amalgamating the pyritiferous matter, which was sent to London for assay.

The total salaries for the first year amounted to £2,310. The works, however, did not pay; and in 1835, after incurring a loss of £26,287 18s. 4d., Mr. Herring transferred himself to Morro Velho. Thus ended, at São João, the aurea ætas No. 2, and since that time the "mother of gold"‡ has reigned with little molestation. Up to late years a small quantity of the precious metal, about £2,000 per annum, has been exported by the municipality.

The industry of the city is at a low ebb. São João has a banker, the Capitão Custodio de Almeida. Cotton and woollen

* The drums round which are wound the ropes which draw up the ore. The "gin race" is the level "horse round" where the animals work.

† This Batêa corresponds in gold working with the Calabash of Guinea and the pan of California and Australia. In the Brazil it is of various shapes, sizes, and kinds of wood; usually it is a circular platter of cedar, 1½ feet in diameter, concave, with a dip of 3-5 inches, and forming in the centre of the flattish cone a little hollow (pião da batêa "the angle of the pan"), into which the diamonds or the gold dust settle. It is worked with the usual rotatory motion that requires some practice, and the water and

lighter dirt are removed by tilting over and with the fingers. The washer sometimes adds raw rum or aloe juice, or an infusion of the plants called Capoeira and Itámbamba, which, sprinkled over the contents of the pan, is supposed to clear them mechanically, as cold water or the contents of an egg clarifies coffee.

‡ Mãe de Ouro, a Brazilian pixy, who guards the virgin treasure. She is rather whimsical than malevolent; but at times she does a little murder. So the Indians of the Manitoulin Islands believe that the Manitou has forbidden his children to seek for gold.

cloths, plain and striped, are made by the hand. They are stained with indigo urucú (the well-known Bixa orellana), and other dyes in which the country abounds. These stuffs are strong, and out-last many lengths of machinery-woven stuffs; but they are expensive, and the supply hardly suffices for home use. Tea was grown, and the Padre Francisco de Paula Machado's preparation, from his chacara on the Barro road to Oliveira, is largely bought at São João, and is appreciated at Rio de Janeiro.

Cereals thrive, and tubers everywhere abound. Hard woods* are of various kinds, but they are now produced in small quantities. The high lying and healthy campos grounds make stock breeding the favourite industry; black cattle are tolerably good, the horses and mules want fresh blood, and the same may be said of the hogs that supply the prized "lombo" and "toucinho." Cheese is also exported. There are large tracts of bottom land admirably fitted for growing cotton, which might be made a source of wealth. A little "tree-wool," cleaned and uncleaned, together with hides and leather, is exported to pay for salt, the principal import.† Of this indispensable article, some 100,000 alqueires are annually introduced for sale and consumption, and it is brought up by mule troops belonging to the planters and traders.

Sugar-cane supplies spirits and vinegar, with a small surplus for trade. In 1859, the municipality contained 48 Engenhos, or boiling establishments, 30 worked by water and 18 by bullocks. In the same year the city numbered 64 stores for goods, native and foreign, 1 inn (hospedaria), several taverns (locandas), and 4 druggist's shops (boticas), "Carne seca" (charqui) and pork are as usual much consumed, and four bullocks are slaughtered daily.

Early in the last century, São João was haunted by a Familiar of the Holy Office, appointed by the Inquisitor General, Cardinal Nuno da Cunha. A certain Padre Pontes, it is related,

* Here called "wood of the law" (Madeira da Lei), because in colonial days it might not be felled without permission. The Portuguese Madeira is the Latin "Materia" used by Cæsar and others.

† The exports in 1859 were :—
 Industry 1,292:000\$000
 Commerce 2,216:800\$000
 total 3,508:800\$000

The imports in 1859 were :—
 Salt, iron, pottery, wet and dry goods,
 Total 2,305:900\$000

Thus showing in favour of produce a total of 1,202:900\$000 (=£120,000 per annum, assuming the milreis = 1 florin).

found himself in the Holy Tribunal's grip. Wishing to change his condition, he had forwarded the following questions to the Vigario da Vara, the Vicar with juridical powers.

"Pedro the Priest wishes to intermarry with Maria, having a dispensation from his Holiness to that effect. Query, can Pedro the Priest so do?"

The Vicar, an intelligent man, replied:—

"To me it is a virgin case, but if Pedro have the dispensation, Pedro can so do."

And Pedro, presenting a forged dispensation, went and did it: he was married with all the honours by the Padre Sebastião José da Freiria, the Padre Francisco Justiniano assisting as witness. The affair was presently bruited abroad, the deceit was discovered, the Inquisition was an edged tool in those days, and the hot amourist was consigned to confinement with ugly prospects. Escaping, he became "Doctor Vieira," and travelled to Rome, where, the matter being taken in jest, he was pardoned. The actors suffered more than the author of the farce, both were placed in the hands of the Holy Office; or, in plain English, thrown into the dungeons, now happily turned into stage and green-room. Padre Sebastião returned home, after justifying his innocence. Padre Justiniano remained with the Holy Office: and it is still doubtful whether he was "relaxed" (relaxado), that is to say, strangled and roasted, or he died in the course of nature, a captive and an exile.

CHAPTER XIII.

TO AND AT SÃO JOSÉ D'EL-REI.

“Capitania tão largamente preñada da natureza, em mil recursos uteis ao Estado e aos particulares, e tão cahida até ao presente em desemparo e descuido.”

Dr. Couto.

It was Saturday—begging day by ancient usage in the Brazil. We were strangers, and therefore fair game. The Praia was beset by cripples of every kind, and some wore the weekly “property dress”—I had never yet seen so much mendicancy in so small a place. Was with me a person who still believes in the Knightly and middle-aged legends about alms, and even a share of bed unwittingly given to individuals of exalted rank in the Spiritual Kingdom: one of these wretches might be St. Joseph, or something higher. All, therefore, received coppers, and the results were a glorious gathering of Clan Ragged, the expenditure of small change, the *not* seeing St. Joseph, and the frequent seeing “Saint Impudence.”

Mr. Copsy took advantage of his midsummer vacation, and joined our party. It is no light matter to take leave of a Brazilian wife, especially when young and pretty: these ladies determinedly ignore innocent gipsying, and carefully scrutinize the gait of the returning mate as he “turns in.” He was not, therefore, sans soucis, till he had “crossed the first Córrego,”*

* “Córrego” (with the acute accent, which raises the voice-tone) is pronounced by the people “Córgo,” and sometimes so written in poetry and by the unlearned. The English turn it to “Corg,” upon the same principle that *mato* becomes “mat,” *restilo*, “restil,” *doño*, “don,” *pardo*, “pard,” and *doce*, “dose.” Their ears do not distinguish the semi-elision of the final vowel. And here we may see the wonderful richness and the exceptional variety of the Luso-Latin tongue, which almost ignores general words and whose

specific terminology tax so heavily the stranger’s memory. The Córrego is a rill, not to be confounded with the Sangradouro (and the smaller feature Bebedor or Bebedouro), the natural drain of a lake or high ground, nor with the arroio or arroyo (Arab. الرويه) a *fumara*, nullah, or intermittent mountain stream. It is somewhat larger than the Regato or rivulet, which again must not be confused with Rego, a leat or water-course. Next is the Ribeiro, a brook, whose feminine form, Ribeira, classically

where, as demons and witches dislike running water, *Atra Cura* stayed behind.

Reaching Matosinhos, the Memorious suburb, we breakfasted with Dr. Lee and his very agreeable São-Joãense wife, whose kind manner and hospitality, in the shortest possible time, won all our hearts. We wandered about the fine large garden, where the orange is the most banal of fruits, and we found the "Sneezer" * growing with Egyptian luxuriance, and a leaf-green rose with undeveloped petals, very fragrant was the *Verbena* (*Verbena Virgata*, Sellow), a powerful sudorific, used externally and internally as a cure for snake bites. As a parting present, Dr. Lee gave me a mastiff-pup, answering to the name of "Negra," lank in body, with brindled coat, square head, broad shoulders, and huge hands and feet. This is the breed called in Minas *Cão de fila*, and I have seen specimens which much reminded me of the thorough-bred English bull dog, not the toy animal which now goes by that name. "Negra" nearly reached the Rapids of the São Francisco River before I was compelled to part with her.

Bidding a regretful adieu to our excellent hosts, we struck up the Valley of the Rio das Mortes Grande. The stream was stained possibly by gold washing, and the Ponte de Sant Iago remained as described thirty years ago, a crazy frame-work of patched wood, with tiled roof and gravelled footway sixty yards long. The local authorities have lately bought it for 600*l.*, and thus it runs every risk of ruin: these instruments of civilization should in the present age of the Brazil be farmed to contractors upon conditions of moderate tolls and regular repairs. The road was especially vile, and after rain it must be almost intransitable. I have already spoken of Brazilian lines of communication generally. In this Province the Imperial are rare: †

means a river bank, like *Riba* (or *Ribanceira*, a tall bank). In parts of the Brazil it is improperly applied to a large navigable river, *c. g.* the "*Ribeira de Iguape*." Follow the *Riacho*, a stream; the *Ribeirão*, a large stream; and the *Rio* or river, which latter is arbitrarily applied to minor features. Many Rio Grandes are mere "creeks." Each term has its incrementative and diminutive forms, the latter much affected in these lands. Sometimes both are united whimsically, but with a specific signification.

"*Ribeirãozinho*," for instance, means a big small stream. It is applied to a water of the class *Ribeirão*, but small for its *Ribeirão*-ship.

* *Espirradeira*, *Nerium odorum*, or *Oleander*. The word is sometimes applied to the sternutative *Ortelão do mato* (*Peltodon radicans*, one of the *Labiadæ*?) The people do not much admire the *Oleander*, and happily ignore its poisonous properties.

† I know only one, that of Philadelphia.

funds were voted for a highway to Goyaz, but the municipal chambers could not combine, and thus it has not emerged from the paper stage.

We passed many Chácaras now in ruins, and recalling the opulent days of São João. A classical site lies some two miles below the bridge, hugging the right bank of the river, and on the western road to the Alagõa Dourada. The lone spot is now known as the Vargem (Meadow reach) de Marçal Casado Rotier, a French-Portuguese. It has been often pointed out as the future metropolis of the Brazil.

On the left rose the Serra do Córrego, a south-eastern spur of the São José Range; the jagged mass of lime and sandstone grit still conserves, they say, gold and rock crystal. At its base crouched "Córrego," a rugged hamlet of poor huts and rich fruit trees, and a little farther on the chapel of N^a S^a do Bom Despacho (of happy conclusion); it was a neat little place when gold was abundantly washed from the "Córrego," and it had a pompous annual festival; during the last fifteen years it has been in ruins. Beyond the northern hills are the Caldas or Thermæ de São José, best known as the Agoa Santa. According to Mr. Copsy, the springs have a temperature of 72° (F.), and are rich in carbonate of soda; he compared them with those of Buxton, 82° (F.), good for the rheumatics, and rich in muriate of magnesia and soda. Mineral waters are found in many parts of Minas, but hitherto "balenary establishments" have been greatly neglected, and patients have had to "rough it" without even lodging. Of late, however, energetic steps have been taken in this matter so important to the common weal.*

Presently we crossed the Morro da Candonga,† a lump lying

* In the Relatorio, or Annual Report of the President of Minas (Rio Typographia Esperança, 1867), we find (p. 68), that measures have been adopted to secure accommodation at the mineral waters of Caxambú, in the Municipality of Baependy, and at the "Aguas Virtuosas" of Campanha. The waters of Baependy are distributed into nine fountains already known. "They contain," says Sr. Julio Augusto Horta Barbosa, "free carbonic acid, carbonates, sulphates of alkaline base, traces of sulphate of iron and sulphuric acid, probably due to organic decomposition, and much esteemed in cutaneous diseases. The following is the analysis of the waters in the Serra do Picú.

Acid, Sulphuric	0·072
,, Carbonic	0·126
Chlorine . . .	0·032
Silica	0·043
Lime	0·145
Magnesia.	0·035
Soda	0·142
Organic, iron, } alum, &c. }	0·035
—	
Total	0·630 in 1000 gram- mes, or 1 litre."

† The word means in Portuguese slang, deceit or trickery, hence a trickster is called Candongueiro, an intriguer. It has probably come from the coast of Africa.

south of the São José Range, and deeply pitted with huge ravines like craters of extinct volcanoes. From the summit we saw to the right of the road the calcareous formation known as the Casa de Pedra,* or more fancifully as Gruta de Calypso. Presently the Trindade church, and São José, the city, lay below our feet, singular and romantic. The basin is traversed by the Córrego de Santo Antonio, a tributary of the Rio das Mortes; though higher than São João,† it must accumulate heat in hot weather, cold in cold weather, damp in damp weather. Stretching from north-east to south-west rises the Serra de São José, which divides the valleys of the Rio das Mortes and the Carandahy; it forms, they say, a double line, a gigantic rut bisecting the centre. The perpendicular wall, 200 feet high, ultra-Cyclopean in architecture, and towering 500 feet above the basin, is a Jebel Mukattam, and not unlike the Palisades on the Hudson. Its crest bristles with curious projections, stiff points, pikes, needles, and organ pipes, while the débris fill the low lands with felspar and clay slate. It is the first of many which we shall presently see, their right lines intersecting the country divide it into vast compartments, and supply to it gold. The precious metal is still washed about N^a S^a da Conceição de Prados,‡ under the Ponto do Morro, to the north-east.

The pavement of the steep "Calçada" was even worse than that of São João; and we reached the house of Mr. Robert H. Milward, to whom our introductory letters had been sent forward, thoroughly prepared to dismount. But no such luck was in store; Mr. Milward was out of town, and Mrs. Milward was

* The usual term for a cave. Mr. Walsh (ii. 223), visited and described the feature. Mr. Copsy places it at six miles equidistant from São João, and São José and near the Rio Elvas. The site is an isolated, calcareous upheaval, some 300 feet raised above a mere brejo, or swamp, and about 440 yards long. The natural tunnel is the model of a subterranean river bed. The ceiling has stalactitic jags, and saw-teeth, the sides are worked and turned by the water bath, and the bottom is clay, still preserving the bones of extinct animals. The party walls of thin calcaire, form the usual curios. The "pulpit" of Gothic style, and the "Church," lead to a dark passage, opening upon the "Gruta do Lustre," Grot of the Chandelier. Behind this are a limestone column and another chambered bulge: the latter

communicating with the open. I am tired of glancing at caverns, after the Mammoth and Adelsberg, and there was no pic-nic to justify the loss of a day.

† This is proved by our ascending nearly the whole way. M. Gerber does not give the altitude, which is popularly supposed to be 5300—5400 feet. We may reduce it to 2500 feet, a little below that of Barbacena.

‡ Prados, nine miles from São José, is likely to become important, as one of the stations on the future railway, viâ Alagôa Dourada to the head waters of the Rio de São Francisco. At present the speciality of the little town is saddlery, supplied by 20 workshops, employing 150 hands: the articles are sold wholesale for 20\$000 each.

not visible to us, although we were thoroughly visible to her. We retraced our steps upwards through a sprinkling of "Jacubeiros,"* some of them "Gente de Casaca."† Their only occupation, when not making shoes, seemed to be playing "petéca," ‡ a kind of hand shuttlecock, in favour with both sexes. We did not expect to find "chicken-fixins" at the inn kept by the Capitão Severino, better known as "Joaquimsinho," and we were not disappointed. Happily for us, however, Saturday is beef day at São José.

Whilst the beef was being manipulated, we walked to the southern slope of the basin and inspected the Matriz dedicated to Santo Antonio. According to the chroniclers,§ it is the most beautiful and majestic in the province; it is finely situated, facing the mountains, the town, and the Riverine valleys and lowlands to the east. According to local tradition, it was built about 1710, by the Marçal Casado Rotier, and the sacraments were first administered in 1715. In those days of pristine piety the wealthy founder sent every Saturday night a gang of 200 slaves, each carrying a pan of auriferous earth; hence the puddle walls are mixed with gold as the pisé of the Dahoman palace is kneaded with rum or human blood—honoris causâ.

The style is the barocco or old Jesuit, and resembles the São Bento of Rio de Janeiro; it is, however, more primitive, tawdry, and grotesque. The nave is rectangular, with frescoes of very poor art, life-sized saints, Gregory and Ambrose, Augustine and Jerome, with the Annunciation, the Magi, and the crèche or crib of Bethlehem. The ceiling is a half hexagon, with panels

* Jacubeiros de São José, a highly invividious term, equivalent to country-bumpkin, applied by the neighbouring São-Joãenses. Disputes about "urban precedence" here ran high as they ever did between Perth and Dundee. Jacuba is servile food, and Padre Corrêa sings of a bad lot. (Epistola, p. 24.)

"Nem agradece a jacuba
Que não comeria em Cuba!"

"Nor likes he the Jacuba
Which he would not eat in Cuba!"

It is also affected by mule drivers, and especially by the boatmen on the Rio de São Francisco. The simple "mets" is maize flour mixed with rapadura sugar and

cold water. St. Hil. (III. i, 270,) omits the sugar.

† "Coat people," opposed to those who wear jackets or shirt sleeves. The garment is generally understood to be of broadcloth, invariably black.

‡ In Tupy, the word primarily signifies a "beating." It is explained in the Dict. by "volante" or "supapo," made of maize leaves. The phrase "fazer peteca de alguem" means to use another as a cat's-paw. The Botocudos had the football made of a stuffed sloth's skin. (Prince Max. ii. 274.)

§ Casal (vol. ii.) and Pizarro (vol. viii.) especially. Of course the dead were buried around and within it. The custom was not abolished in Rome and Naples till 1809.

and paintings not badly executed. There are six side chapels, the third left containing a large cross. Two pulpits attached to the side walls are poor and naked, with highly ornamental canopies, suggesting those "African gentlemen" whose sole costume to speak of is a tall blue chimney-pot hat. On the left is a curiously-shaped choir or organ loft, supported by queer caryatides and cornucopiæ, and copiously festooned and painted. The organ is tolerable, and indeed it is said to be the best in Minas; the organist kindly gave us a specimen of his art. Under the choir are two fancy figures weeping bitterly without a cause. Above it is a projecting branch for lights, a heraldic full-sized wooden eagle—somewhat like those which support our lecterns—whose beak supports a lamp chain; of these Jovian birds there is one before each altar.

The sanctuary is a mass of gilding and carving, and the ribbed roof shows a quadripartite vaulting. On the right-hand wall is the Marriage of Cana, to the left the Last Supper, large paintings, but not equal to the popular treatment of the subjects. The retablo under its canopy of gilt wood is Saint Anthony, performing the miracle of the animals. He holds up the monstrosity. The people, doubtless "sceptics" and "shallow infidels," refuse to adore, but the once Typhonian donkey, new type of the zeal without knowledge, falls on its humble knees. It calls to mind the old hymn—

Cognovit bos et asinus
Quod puer erat Dominus.

Three steps lead up to the throne of the Santissima, a fine piece of wood and gilding, always, however, excepting the fat boys dressed in gold-wash, who put out the eye of taste. Above it is a figure of our Lord ascending to Heaven.

The Miracle room showed a votive offering, dated 1747, the men in periwigs and full skirted red coats, were wild brethren to

Sir Plume, of amber snuff-box justly vain.

The sacristy contained the usual old fountain, decorated with an impossible head, a few insignificant pictures, and old priedieu chairs of fine black-wood, with seats and tall backs of highly embossed leather. These articles are common in the

churches of Minas, some of the country clergy affect them, and I have found them at times in laical houses. They are picturesque, but who, in the name of comfort, sits off the dorsal angle? a nursery stool would be preferable! This property room is rich in thurifers, chalices, and other items of the ecclesiastical plate service; it is said to contain 1280 lbs. of silver and silver gilt. The most grotesque part is the Capella de Sete Passos, the seven principal stations of our Lord's passion, beginning with the garden and ending at the crucifixion. The figures were life-size, of painted wood, and nothing can be more like a Buddhist temple in those lands where Buddhist art does *not* excel.

We then strolled about the place, and inspected the minor lions. The Casa da Camara, opposite the Matriz, is certainly the best of the 300 houses. We counted, besides the parish church, 1, São João Evangelista, 2, Rosario, 3, Santo Antonio dos Pobres, 4, the chapel of São Francisco da Paula, and 5, the Mercês, still under repair; a total of seven, and a tolerable allowance for a population of 2500 souls.* Descending the calçada, we crossed over the neat little stone bridge, and worked round to the principal Chafariz. The entrance to its flagged platform certainly dates before the days of crinoline; the front shows three masks and two spouts, still surmounted by the arms of Portugal. All is like the garden of black Hassan, but the place would make an admirable bath.

Beyond this the red land is cut and hacked by the gold-washer. "St. Joseph of the King" (D. João V.) was the wildest solitude during the seventeenth century, when the Paulistas and Taubatéenses began to push their bandeiras or commandos into the vast mysterious interior. Guided by the brave and energetic adventurer, João de Serqueira Affonso, a party of explorers seeking red-skins and "yellow clay," reached the margins of the Rio das Mortes, and founded the usual "Arraial." Its golden treasures attracted emigrants, and on January 19, 1718, about two years before Minas Geraes was raised to an independent captaincy, it became a villa and a municipality under the Governor D. Pedro de Almeida, Count of Assumar. In June 1842, it acknowledged the insurgents, and in 1848 it was degraded to a mere "povoação," a "one-horse" affair. But Resurgam was

* In 1828 it contained, we are told, 2000 souls. In 1864, the population of the Municipality numbered 24,508 souls with 1209 voters and 35 electors.

its motto, and on October 7, 1860, it took upon itself the noble obligations of cityhood.

In April 1828 S. José became the head-quarters of the General Mining Association, that had secured three leagues of auriferous soil, and whose interests were looked after by Mr. Charles Duval.* In 1830 a tract of ground was also secured by the "St. John Del Rey." But water was found to be very abundant in the mine and very scanty on the surface; consequently, stamping and washing went on slowly. Two years afterwards the directors gave up the diggings in disgust, the "plant" was bought by Mr. Milward, and grass now grows abundantly in the streets.

The trade of São José, except in Jacuba and Petécas, is at a stand-still. Once it had five fabrics of native flax, seventy looms, (theares,) where 30,000 metres of country-grown cotton were woven, five potteries of good clay, and eight kilns, which produced per annum 3000 bushels of lime. In 1855 the municipal judge calculated the exports at 450 : 000 \$ 000, and the imports at 250 : 000 \$ 000.

Nature, in one of her usual freaky moods, produced at "São José of the Jacubeiros," no less a personage than José Basilio da Gama, ex-Jesuit novice, favourite of Pombal, member of the Arcadia Mineira, author of the celebrated epic, or rather metrical romance, "O Uruguay," and glory of his native land. As might be expected, however, under the circumstances, the place of his birth never recorded his natal date, which is supposed to be about 1740; the names of his parents have only just been discovered, and where there are seven churches, there is not a slab to honour the greatest of the Brazilian poets.

His "Exegi Monumentum" shall conclude this chapter.

Uruguay! men shall read thee : though some day
 Brood o'er this vision dark, eternal night.
 Live thou and 'joy the light serene and clear !
 Go to Arcadia's groves, nor fear to be
 A stranger stepping on an unknown shore.
 There 'mid the sombre myrtles freshly reared,

* Mr. Charles Duval, who was married to a Polish lady, still remembered in the country, afterwards became Chief Commissioner of Gongo Soco, and died about 1857. Mr. Walsh (ii. 117—8) fully describes his

system of treating the quartz and pyrites : having failed to see Mr. Milward who, in those days had charge of the operations, I can neither add to nor correct his information.

Not all Miréu * the sad urn shall hold.
Raise from the foreign sky and o'er it strew
With peregrine hand the wreath of barbarous flow'rs ;
And seek thy follower to guide thy steps
Unto that place which long thy coming 'waits.

* His poetical, or pastoral name.

CHAPTER XIV.

TO THE ALAGÓA DOURADA OR GOLDEN LAKE.

“Aeris tanta est clementia ut nec nebula inficiens, nec spiritus hic pestilens, nec aura corrumpere; medicorum opera parum indiget.”—*Gerald. Cambr.*, Chap. 9.

THE beds of São José were not downy. We agreed to rise at 1 A.M., and most of us spent the night talking over old times. Mules, however, will stray, and with the thermometer showing 36° F. negroes will feel torpid. Yet we effected a start at 4:50 A.M. The road at first traversed wooded lands; at least, so we thought in the darkness of mid-winter. It was almost like riding up an endless wall of stone, slightly slanting, and sliding down on the other side. Presently it began winding through a gap in the grim Serra de São José; bad it was to ascend, worse to descend, and the raw damp of early dawn was not favourable for the exercise of any faculties, perceptive or reflective.

At 8 A.M., desperately sleepy, chilly and comfortless, we reached the Rio Carandahy, which, draining the westward face of the meridional range north of Barbacena, falls into the Rio das Mortes Grande, and thus into the Rio Grande and the Paraná. The name is trivially explained by the cry on sighting a drowned man, “A cara anda ahi!”—here goes the face! The term is probably Tupy, and Cara-andahy would mean the “hawk’s hook,” or curve. In the Brazil, as in “the East,” there is an abundance of folk-lore philosophy, superstitious, fanciful, descriptive, and facetious. Thus, “araxá,” town, so called because it is a “sun facer,” “ara” being day, and “echa” that looks at, is popularly derived from “ha de se achar,” he (or it) must be found, alluding either to a Quilombeiro* (maroon negro), or to the gold reported to be abundant.

* The Quilombo may be a corruption of the Bunda word which Fr. Bernardo Maria de Canneatim (Lisbon, 1804) writes in his well-known dictionary, Curieumbu (Ku Riémbu), *i.e.*, povoar, to populate. In the

Brazil it is applied to the bush settlements of fugitive slaves and other malefactors: some of these Maroon villages, as the Quilombo dos Palmares, will live in history. “Callambola,” “Carambola,” or “Qui-

Having breakfasted at the Carandahy Bridge, we ascended to a kind of plateau, or table-land. This *taboleiro* was grassy, and thinly wooded above with stunted trees like the *ilex* and *arbutus* of the Tyrolese glade; whilst the slopes and hollows showed the huge red water-breaches and the bouquets de bois of the Minas Campo. There were only two fazendas upon the thousands of square acres, well supplied with small streams in little glens. The path was all up and down, nor did it want the usual quagmires.

Three mortal long leagues delayed us till nearly sunset. After many an "anathema esto," we reached an outlying settlement on a hill-top, primitive as a Tupy *taba*.* Thence descending a steep winding path, we found ourselves in something more civilised, the Freguezia de Santo Antonio de Alagôa (vulgarly Lagôa) Dourada.† It appears in the shape of a single street, a favourite form in old-fashioned parts of the Brazil, this long town reminding one of a settlement on the Gaboon or the Congo River, and survives in the suburbs of such civilized places as (São Salvador da) Bahia. Some fifty one-storeyed houses, with far-projecting eaves, which suggest, when viewed from below, a colossal flight of steps, stretch straggling from north to south, and spread along the meridional bank of a brook traversing a dwarf bottom. This is one of the head waters of the Brumado, the brumous, or foggy, called by the elders Córrego, or Ribeirão de Inferno, or "Hell Creek." After six or seven leagues it falls into the Paraopéba. According to some, it is the main stream, and we are now in the basin of the Rio de São Francisco. Crowning the square-like street are the remains of a new church, intended for St. John; it is highly effective as it now stands—a ruin before it became an edifice. Further down is the Matriz de Santo Antonio, old and with the antiquated belfry, a detached wooden framework. Also,

lombola," and in Prince Max. (i. 281), "Gayambolos," which I can only consider to be further debasements; one of them, however, occurs in the *Cartas Chilenas*, a celebrated Brazilian satire, the "Draper's Letters" done in verse,—

E manda a hum bom cabo, que lhe traga
A quantos *quilombolas* se apanharem
Em duras gargalheiras.

A sturdy corporal he sends to bring
All the Maroons on whom he can lay hands
In hard neck-irons.

* The *Taba* is the Kraal or Indian village, a collection of "Oeas," in Portuguese Cabanas—wigwams. The *Oeara* is the open space, generally circular, surrounded by the lodges.

† According to the *Diccionario Geographico*, sub voce, it was originally the Alagôa Escura—the Dark Lake. Dourada is sometimes erroneously written Doirada: the Portuguese diphthong "ou" is mostly sounded "oi," to the great confusion of foreigners,

for the population of 600 souls and Sunday visitors, there are two chapels of ease, the Mercês and the towerless Rosario.

We passed on to the further end of the straggling village, and “rached” at a kind of cottage that bore the “strange device”—

CASA HOSPERIA ASAO, (sic, the word reversed.)

Dom Miguel da Assumpção (sic, cão a DOG) Chaves.

The kennels serving for bed-rooms were foully dirty, the floor was foot-tamped earth, and the ceilings were in Mineiro style, strips of bamboo bark about an inch in diameter crossing at right angles. This rough matting has its advantages; it is cheap, clean, and not close enough to prevent ventilation; in the better establishments it is fancifully patterned, stained, and chequered. The beds had, for all coverture, bits of thin, coloured chintz, not pleasant with the mercury at 35° F.; the occupants usually shiver in thin “ponches,”* or cloaks; of course we had not forgotten to bring railway rugs.

It was Sunday, June 23, the “vespera” (eve or vigil) of St. John, perhaps the oldest “holy day” in the civilised world. It is, I need hardly say, the commemoration of the Northern Solstice of the Mundi Oculus, when his “Dakhshanáyan” begins. It is the feast of the mighty Baal (or Bool בעל : 1 Kings xviii. 22—24), the great “master,” the “husband” of the moon, the mighty “Lord” of light and heat, the sun of this great world, both eye and soul. We find him called Bel and Belus in Assyria and Chaldea, Beel in Phœnicia, Bal amongst the Carthaginians, Moloch (*i.e.*, Malik, or king) amongst the Ammonites, Hobal in Arabia (Drs. Dozy and Colenso), Balder (Apollo) in Scandinavia, Belenus in Avebury, and Beal in Ireland.† The flaming pyre is in honour of the Mundi Animus, the solar light. Thus we read in

* The Poncho of Spanish America. Here it is a heavy sleeveless cloak of blue broadcloth lined with red baize: when the stuff is fine, the garment of many uses is preferable to any macintosh or water-proof, and it protects from the sun as well as from rain. A “ponche” of white linen is used by the wealthier classes when riding during the heat of the day.

† I know it has been stated that nearly all the Bels, Bals, and Bils, which come so handy to the support of the Baal theory, are forms of Bil, good, Bally, a township, Bile, a tree, Bealach, a road, and Bil or Beul, the mouth of a river. But the

pagan Irish certainly worshipped with hills, trees, wells, and stones, the heavenly bodies. The Bel-aine, “little circle of Belus,” was their year. How then could they have omitted the sun, that object of universal adoration? The Baldersbad of Scandinavia are described by many a traveller, and Leopold von Buch found them in northern Norway, they are seen on both coasts of the Baltic, and they extend into Prussia and Lithuania. I cannot understand how a festival which is universal should be termed characteristic of the insular Celts. (*Athenæum*, No. 2073, July 20, 1867). The furthest point south at which I

the "Quatuor Sermones," "In worship of St. John, the people waked at home, and made three manners of fires: one was of clean bones, and no wood, and that is called a bonfire; another is clean wood, and no bones, and that is called a wood-fire, for people to sit and wake thereby; the third is made of wood and bones, and that is called St. John's fire." So the sun-worshippers of northern England, the central counties, and of Cornwall, kindled on their highest Lowes and Torrs, at the moment of the solstice, huge *feux de joie*, and called them "Bar-tine." And at this moment, whilst we in the heart of the Highlands of Brazil, are watching the piling up and the kindling of the pyre, semi-pagan Irishmen in Leinster and Connaught, even in Queen's County: they are dancing round, and their children are jumping through their memorious Beal-tienne* (Baal-fire). And still the Round Towers in which the signal fires were lit, are looking on.

Here also we see illustrated the effect of climate upon great national festivals. The northern yeule, or yule—merry Christmas—the Feast of the Southern Solstice, has scant importance in these latitudes, where the weather is hot and rainy, and the roads are bad. Midsummer is the cool of the year; the temperature is then delightful, and the ways are clean. People meet at the church towns from every direction; each place has its bonfire, bands promenade, and people sit up all night, and gleefully renew the "Tree of St. John."† They keep the feast in utter ignorance of its origin, and indeed I have often asked of European ecclesiastics the meaning of the bonfire, but in vain.‡ Educated Brazilians have inquired how is it that men

found the fires was at Guimar in beautiful Tenerife: there every person named John must on Midsummer Day "stand liquor" to all his friends. The Solstice day has probably made St. John's name so popular at the baptismal font throughout Christianity; hence too our Jones (*i.e.*, John's, the same form as Johnson) and Evans, the genitive of an old Welsh name equivalent to John. St. John seems especially to have favoured the Basque country. In his pyre is placed a stone which serves him as a "prie-Dieu;" on the next morning it is found to preserve some of his hairs, which naturally become relics. The fire is of herbs, and those who jump through it do not suffer from "itch."

* Till lately live coals from the fire were strewed over the fields to produce a good crop.

† The "mastro de S. João" is a tall, thin tree-trunk, sometimes left growing and merely trimmed; more often it is felled, stripped, and replanted. This is generally done a week or so before the festival. Attached to the top is a vane about two feet square, of light frame-work filled with calico, upon which is painted a figure of the Saint, and amongst negroes he is often black. This "mast" reminds the English traveller of our "shaft," or May-pole. The bonfire (fire of joy) was known to the indigenes of the Brazil, who called it "Toryba," from Tory, a faggot.

‡ The Equinoxes, as well as the Solstices, were honoured with memorial fire-festivals, *c.g.*, Easter-day or May-day, the Holi of India, and the Irish La Beal teinne; also All-hallow-een (Oct. 31). And if Christianity had an astronomical origin, so have

walk over the St. John's fire without burning the feet? Of course, the answer is that those who pass through the flames always pass quickly, and often with wet soles. Girls throw the contents of eggs into water, and see in the forms which they assume the faces of their "*futurs*." † They all judge of their luck, of course matrimonial, by twisting paper-slips, which are opened or not by the cold. Uneducated men believe that St. John sleeps through his festival, and happily so, for were he to wake he would destroy the world. Poor saint! They sing lengthy songs beginning with—

São João se soubéra que hoje e seu dia,
Do Ceo descería com alegria e prazer.‡

And the fiery fête is more pleasant in the country than in the towns, where bell-ringing, discharges of fireworks, begin before dawn. You are deafened with the ridiculous rockets, and the moliques or niggerlings make the streets unpleasant by throwing "feet seekers" (buscapés) or squibs, which do their best to injure your legs.

The village is a mean place, but its situation is remarkable, and the inhabitants say that it is the highest "arraial" in Minas; whilst the Serra das Taipas§ is the loftiest range, and Itacolumi is the monarch of mountains. It occupies one of the highest plateaus—perhaps *the* highest—not only in Minas,

all other advanced faiths. For religion, or the belief of things unseen, began on the earth with earthly matters and ended in the heavens with the Great Unknown.

* This is the legitimate Irish Bil-teinne, good or lucky fire through which cattle are driven and children are passed to guard them against the maladies of the year.

† In Ireland "Brideogh," a picture of St. Bridget, properly Brighid, a Vestal Virgin. It was made upon the eve of that apocryphal saint "by unmarried wenches with a view to discover their future husbands." So in Germany the maiden invites and sees her destiny on St. Andrew's Eve, St. Thomas' Eve, Christmas Eve, and New Year's Eve. Before midnight on St. Andrew's Eve, melted lead is poured through the open parts of a key whose wards form a cross into water drawn from the well during the same night, and the metal takes the form of the tools denoting the craft of the spouse to be.

‡ St. John could he but know that we honour him this day,
Down from heaven he would stray in his gladness and his joy.

The metre is a favourite with the country people, so is the rhyme; the consonance is of the first line end and of the syllable that ends the third hemistich, whilst the couplet terminates unrhymed. In this way are mostly composed the "Modinhas" which we may translate "ballads," and when recited, as the fashion is, not sung, the peculiarity favours a pathetic or sentimental dropping of the voice suitable to the theme. Curious to say, the same kind of couplet and triplet also may be found amongst the wild Sindhís. I have given instances in "Sindh and the Races that inhabit the Valley of the Indus," pp. 88 and 116.

§ Some call it Alto das Taipas. It is the north to south ridge connecting the heights of Ouro Preto with those of Barbacena, and Burmeister calls it Serra de Barbacena.

but in the Brazil, as is proved by the waters flowing from it to the northern and southern extremities of the Empire. And yet this "wasser-schied," which separates two of the mightiest river systems known to the world, is of moderate altitude, not exceeding 4000 feet. A similar anomaly of Nature is often to be seen in the divisions between highly important basins, witness the Rio Grande-Tocantins, the Madeira-Paraguay, the Nile-Zambezi, the Missouri-Colorado, and the Indus-Bramhaputra.

The name, the lay, and the trend of this great "Linha Divisoria" are still in confusion. The people, who are poor in general names, call it "Espigão Geral," the General Ridge.* Thus they distinguish it from the "Espigão Mestre," or Master Ridge, to the north-west, the divide of the Tocantins and the southern Paranahyba. Baron von Eschwege has connected the two by a vast curve, which heads the Valleys of the Amazon, the Paraná, and the São Francisco, and he has named the Espigão Mestre "Serra das Vertentes," or Range of Versants. In this he is followed by Burmeister, whilst St. Hilaire, after the fashion of French departments, preferred calling it "Serra do São Francisco e do Rio Grande.†

This mountain plateau forms in Eastern and Equinoctial South America the third and innermost transverse range, the others being the Serra do Mar and the Mantiqueira. Running in a direction roughly to be described as east to west, it connects the great north to south ridges. It begins at the Serra Grande, alias do Espinhaço, about W. long. $0^{\circ} 30'$ (Rio de Janeiro). It then runs on a parallel between S. lat. 20° and 21° , throwing off large streams to the north and south, and presently becoming the Serra do Piumhy.‡ It continues to trend west for a total of 180 miles, till it reaches the box-shaped mass called the Serra da Canastra, lying about W. long. 3° — $3^{\circ} 30'$ (Rio) and 47° (Green.). Some maps, following Spix and Martius, extend the Serra da

* It is perhaps more generally known as the Serra da Alagôa Dourada.

† A name afflictively common in the Brazil. This "big river" is the eastern head water of the Paraná-Paraguay-Plata. The Paraná is formed by the junction of this stream with the Paranahyba, which I call the Southern to distinguish it from the Great Northern Paranahyba of Maranhão and Piahy.

‡ The word means Water of the Pium or

Sandfly. St. Hil. (III. i. 169) renders it "Water of the Swallow" (Mbiyui). Many however of his derivations are farfetched, and taken from vocabularies. Thus he derives (III. i. 166) Capitinga from the Guarany Capiy, grass, and pitiunga rank smelling (T. D. Piteú, bafio, fortum, rankness): it signifies simply white grass. So (III. i. 238) he makes Peripitinga to be "fetid rush:" it is "flat rush," pitiंगा, flat, not pitiunga.

Canastra to the Serra Negrá of Sabará, and thence north to the division of waters between the Rio de São Francisco and the Southern Paranaíba. M. Gerber and the majority prolong the Serra da Canastra to the "Mata da Corda," which extends to S. lat. 17°, and whose last buttress we shall see on the Rio de São Francisco.

CHAPTER XV.

AT THE ALAGÓA DOURADA.

“Crám-bi-ba-bámbali-i-i.”

Brazilian Drinking Song.

WHEN our traps were settled in the dog-holes, I walked off to the Palacete da Comissão, which housed the surveyors of the great future line of rail, which will soon end the present “hideous waste of power” between the Valleys of the Parahyba and the São Francisco. Mr. John Whittaker, C.E., was then in charge, with two first assistants, Messrs. Thos. Hayden and Chas. A. Morsing, besides a number of underlings. Everything was in admirable and business-like confusion; mules tramped about the court, saddles hung from the walls, boxes strewed the floors, and instruments were stowed away in the corners. It was the signal of separation, half the party going north and the other south.

On the Fête of St. John we made a halt, and were invited to lay the first chain. At noon we proceeded to the brook, heading a little crowd of spectators, whose wives and children eyed the outlandish proceeding, as usual, from their windows. The peg was duly planted, my wife giving the first blow, and breaking the bottle. A chain was laid down, and sights were taken to “N. 74° W.,” and “S. 73° E.” The inauguration passed off well; flags flew, the band played its loudest, we drank with many vivas—pam! pam! pam! pams!—and hip! hip! hip! hurrahs! to the healths of the Brazil, of England, and especially to the prolongation of the Dom Pedro Segundo Railway; many complimentary speeches were exchanged, and the music escorted us back to our “ranch.”

The scene of the ceremony was the site where the Dark became the Golden Lake. When first discovered it covered the lowlands upon which the houses now stand, and in order to

drain it, the old miners practically solved the geographical problem of connecting two versants. By means of deep gap-like cuttings, which still remain in the lowest levels, they turned the feeders of the Carandahy, which flows south, into the Brumado, which runs north. Here the greater part of the precious metal was discovered, and there are many traditions of its former wealth. Mr. Walsh* gives an account of the old diggings now in abeyance; he mentions a forty-pound nugget, which proved to be the common nucleus of fibres ramifying in all directions.

As regards the line to be taken by the railway through the "Paiz Camponez," three termini have been warmly advocated by their several partisans, and the Commission was sent to see and survey for itself. The three valleys which claim the honour are those of the Pará, the Paraopéba, and the Rio das Velhas.

The Pará passes to the west of Pitanguy, and falls into the São Francisco about S. lat. $19^{\circ} 30'$. Unfortunately, the Great Dividing Ridge, which must be crossed *viâ* Santa Rita, Lage, and Desterro, puts forth a succession of lateral buttresses, with numerous and important surface-drains, requiring long turns, tunnels, bridges, and similar expensive works. Moreover, when it reaches the São Francisco the latter river is completely unnavigable, and cannot in these days be made navigable.

The Paraopéba,† which runs to the east of, and almost parallel with, the Pará, has some advantages. From the Rio das Mortes to the Carandahy, the distance is only five leagues. At the Alagóa Dourada the ground is favourable; thence it would run down the Brumado valley, and enter that of the Paraopéba after eight leagues. This line would pass fourteen leagues west of the present capital of Minas, through campos where agriculture flourishes, and where there are backgrounds of unoccupied forests.‡ On the other hand, M. Liais has proved that the Paraopéba does not, like Sabará, lie nearly on the meridian of Rio de Janeiro, and that being far to the west it necessitates a useless detour. Moreover, the Paraopéba River is practicable only for thirty, some say twenty, leagues§ between the mouth

* (ii. 162).

† "Paraopéba," which Dr. Couto writes "Paropeba," and others "Paroupeba," is said, I do not know with what authority, to mean the "river of the leaf."

‡ Mato Geral, of which more presently.

§ The Riverines of the Paraopéba declare that it is navigable for canoes below the Salto (cataract) of S^{ta} Cruz near Congonhas do Campo for almost double the distance mentioned in the text.

of the Betim (S. lat. 20° 10') and the Cachoeira do Chero—the Rapids of Lamentation*—in S. lat. 19° 30'. Finally, here again, as Liais has shown, the Rio de São Francisco cannot be made safe, even for tugs, from the debouchure of the Paraopéba to the terrible Rapids of Pirapora.†

During the afternoon we walked up and down the banks of the baby Brumado. Here the *batêa* produced a few spangles of gold; the owner of the land is said to take at times three to four florins' worth per diem, which barely pays. The day ended as great days always do amongst true Britons—with a grand dinner given by Mr. Whittaker, and he managed it wonderfully well. The good vicar, Rev. Francisco José Ferreira, who had duly said mass at 11 A.M., took the head of the table; my wife was at the foot, and the sides showed seventeen Brazilians and eight strangers. The food was, as usual, represented by messes of chickens and meat, *feijão*, rice, *farinha*, and pepper sauce,—in fact, “*Mexiriboca*,” ‡—with cheese, beer, and port from the engineers' stores. The only peculiarity was the system of toasts, after the fashion of old Minas. Immediately after the soup, each one made a little speech, and sang in the most nasal of tones a little scrap of a sentimental song, generally a quatrain and a bittock. The following are specimens:—

Aos amigos um brindo feito
Reina a alegria em nosso peito
Grato licor, alegre, jucundo,
Que a tudo este mundo,

desafria o Amor !§

All the audience takes up the last word, and joyously prolongs with a melancholy murmur—“*Amo-o-o-r.*” Follows, perhaps:—

Como he grata a companhia,
Lisonjeira a sociedade,
Entre amigos verdadeiros,
Viva a constante amizade—

Amizade! (chorus.)||

* Reminding us etymologically of the “*Bab-El-Mandab*”—Gate or Gut of the Weeping-place.

† This is not the place to treat of the Rio das Velhas, which will be described in the first chapters of the second volume.

‡ *Mexiriboca* is a ludicrous term like our “*hodge-podge*,” meat, rice, beans, *farinha*, and other matters mixed and eaten with a spoon.

§ A toast to this good company,
Where every heart beats high with glee;
The generous wine flows fast and free,
For nought in all the world we see
That is not won by love.

|| How happily we here are met,
How pleasantly the time hath passed
Amid the friends we ne'er forget—
Ever may constant friendship last,
And amity.

Sr. Cyprianno Rodriguez Chaves greatly distinguished himself both in the singing* and the speechifying. All kinds of healths were drunk and redrunk. At last the married men were proposed; the bachelors objected, and then began a general fight, friendly and furious; the Centaurs and Lapithæ bound over to keep the peace. At such time,—

* * * The whole table,
With cheers and tigers, was a perfect Babel.

After dinner we removed our chairs, and took coffee in the street. Soon the temperature became nipping in these hollows of the Brazilian Highlands; thin ice forms over shallows, and in places a soup-plate full of water will be frozen in the night. We removed to the ranch, where Mr. Copsy made for us a “Crámábali,” † a native brûle, highly advisable in these frozen altitudes, and we “sampled” sundry glasses of it. The “vigil” fires were not lit again, but the band of ten men promenaded the streets, and ended with giving us a serenade. We did not separate till late, and we sat till “*Sat prata biberunt.*”

I have spent many a less merry Christmas in Merry England, and we shall not readily forget Midsummer Day at Alagòa Dourada, in the year of grace 1867.

* This singing at meat has been univ-
ersal in Europe. In old Germany, when sit-
ting after dinner all the guests were obliged
to recite some rhymes under pain of being
obliged to drink off a bumper. I believe
that the practice was introduced into the
Brazil by the Hollander invaders during
the 17th Century. It is not known on the
seaboard, where Portuguese “speechifying”
is the rule, but parts of the interior still
preserve it. What would say to it the

accomplished author of the “Art of Din-
ing?”

† I will give the receipt in the words of
the compounder:—“Pour into a large deep
dish a bottle of the best white rum, add a
quant. suff. of sugar, fire it and keep stir-
ring. Gradually add a bottle of port, and
when the flame weakens, put in a little
cinnamon and a few slices of lime. Blow
out and you will have the very perfection
of Crámábali.”

CHAPTER XVI.

TO CONGONHAS DO CAMPO.

Vem se dentro campinas diletosas,
Gelidas fontes, arvores copadas,
Outeiros de crystal, campos de rosas,
Mil fructiferas plantas delicadas.

Caramurá.

THOUGH joy lasted to the small hours, sorrow came in the morning. Mr. Copsy was compelled by professional engagements to turn his back upon us. "Prodigio," the old white "madrinha," leaped a ditch during the night, and was not followed by the rest, a rare circumstance. The intelligent animal doubtless cherished tender memories of good feeding at late baiting-places, and feebly determined to renew the pleasure. We rose at 4 A.M., and we could not mount till hot 9 A.M. We were accompanied by the engineers, nor could, indeed, we have gone far alone. Nothing is easier in the Campos generally than the "errada"—for which the popular phrase is "comprar porcos"—to buy pigs. The land is often a net of paths—a kind of highway from nothing to nowhere. When you ask about the way, the inevitable answer is, "Não tem" (pronounce "teng") "errada"—you can't go wrong, and behold! you at once come to a point where four or more roads cross or meet. The people know every inch of ground; they *cannot* "stravague," and they cannot conceive that you can.

Moreover, we are now on a mere bridle path, without commerce, communications, or comforts; the few inhabitants are naturally intelligent, but they never rise above semi-barbarism. If you inquire the hour, the replier will look at the sun and say 9 A.M. when it is noon. If you desire to know the distance, the answer will probably be, "One league, if the gentleman's beast is a good one; if not, one and a half." Koster sensibly divides his

leagues into legoas grandes, legoas pequenas, and legoas de nada—of nothing, which may mean four miles.

Crossing the old Lake-site, we ascended the northern hill by a hollow lane of red clay, and soon debouched upon the Campo. From the higher ground appeared, far in the blue north-east, the lofty wall of Itacolomi. The surface is much broken with “cluses,” wooded and boggy ravines, generally struck by the path at a right angle. Railroads here must find, perforce, and follow the bed of some stream; otherwise it is a “bad look-out.”

After marching five miles, we forded a small water, and ate together our last breakfast. The occasion was not solemn. In these lands, where all wander, men do not say, “adeus” (farewell), but “até a primeira,” “à tantôt,” or “até a volta” (pronounced “vorta”), till the return; and I have long learned to substitute for adieu, *au revoir*. In fact, we all expected to meet again, and some of us met before we expected to meet. Mr. Whittaker then mounted his mule, and, followed by the minor lights, went his way, whilst we went ours.*

Two hours took us to Olhos d’Agua,† so called from a lakelet on the left. We rested at a cottage, and found the women busy at the old spinning-wheel, working the cotton that grew before their doors; this is a passe-temps as general throughout Minas as in ancient France. When cooled with oranges and plantains, we resumed, and sighted, deep down in a romantic hollow, a Fazenda belonging to the Padre Francisco Ferreira da Fouseca. It was a charming hermitage, embosomed in its hills, and beautified by its luxuriant weeping willows, its feathery palms, and its stiff Araucaria pines. The Bombax (Paineira) rose sturdy with its slightly bulging stem,‡ tapering at the top, and armed with short and stout, sharp and curved cock-

* I leave these words as they were written. We did meet again, more than once, and with pleasure, and little expecting what was about to happen. On June 21, 1868, Mr. John Whittaker died at Rio de Janeiro, mourned by all his friends, and by none more than ourselves.

† “Eyes” of water—a term probably translated from the Arabic: in the Brazil many places are so called.

‡ Another species of Silk-cotton tree, “le fromager ventru,” is called from its prodigious central pot belly, the “Barri-gudo” (Chorisia or Bombax ventricosa,

Arr.). There are in the Brazil, as in Africa, many kinds of this tree, some with wrinkled but unarm'd bark, others with thorns: the flowers are white pink, or white and pink, they easily fall like the blossom of the Calabash; the leaves are either entire or have one to two lobes. The bole gives a viscid gum, and in some species the soft spongy centre is filled with large larvæ, which the savages used to eat. The fruit, about the size of our largest pears, yields a cotton of which no serious use has yet been made.

spurs, over which no one but Dahoman Amazons can pass. The large palmated leaves set off a profusion of pink and white blossoms, resembling the richest tulips, and these are soon followed by pendants of useful, but not yet utilised, cotton-pods. On the road side was the Chapel of N^a S^a da Lapa; the gossip tree opposite it was a magnificent Gamelleira, a pyramid of cool green shade, almost equalling the sycamore of Halmalah, or the piles of wild fig which adorn the eastern borders of wild Ugogo.

About mid-afternoon we reached Camapoão* district and streamlet, the latter crossed by a dangerous bridge. The little chapel was under repairs, and a few fazendas, large and small, showed that the land could bear coffee and sugar. We now entered the cretaceous formation, which corresponds with that of São Paulo, and scattered upon the path lay dark flints embedded in white chert.

At the end of the march we inquired for a resting-place, and were shown a deserted Rauch-shed, green with decay, and crying fever and ague. One José Antonio de Azevedo presently took us in, and proved himself a bitter draught—a very “niggard and misknown knave,” the model of grumbling incivility and extortionate rapaciousness. This old wretch startled us. The traveller in these lands becomes so accustomed to the affable, hospitable Brazilian ways that he feels acutely those displays of small churlishness which he would not remark in a French or English boor. And how rare are such bad manners here may be judged by the fact that this Azevedo was the sole base exception to the rule of kindness and obligingness.

This day we suffered much from the Carrapato,† and “realised” the popular jest levelled at the Mineiro, namely, that he is known by his patent boots and—“fiddle.” The nuisance is of the genus *Ixiodes* of Latreille, and entomologists still dispute whether it be of one or of two species. The people declare that the Carrapato grande is different from the miúdo, a small and hardly perceptible insect. Spix and Martius take this view,

* Or Camapúam, translated “scins arondis,” opposed to Camapiréra, “peitos cahidos.” Cama signifies the breast, and “apoam,” contracted to poam, round.

† Not Carapato, as written by Mr. Walsh, nor Garapato, as by the Religious Tract Society. The former remarks (ii. 8)

that the insect, on account of its resemblance to the ripe bean of the Palmi Christi, was called by the ancients κροτον and ricinus. It is the vineucha of Paraguay, the tique of French Guiana, and the ricinus of old authors.

and Pohl named the former *Ixiodes americanus*, and the latter *Ixiodes Collar*. St. Hilaire (III. ii. 32) and Gardner (293) believe that there is only one kind, which greatly varies at different ages.* It is the "tick" of the Mississippi valley, and when fully developed it is not unlike our sheep-tick.

This acaride, seen under the glass, shows a head armed with a trident of teeth, serrated inwards; the two external blades of the terebro when entering the flesh bend away, forming a triangle with the base outwards and downwards, and rendering it difficult to remove the plague. The three pairs of short and one of long legs are all provided with sharp and strongly-hooked claws, the flat body is coriaceous and hard to smash; the colour is a dull brownish red, like the cimex. The young animal in early spring is a mere dot, with powers of annoyance in inverse ratio to its size. It grows fast, and when distended with blood it becomes somewhat bigger than a marrowfat pea.

In most parts of Minas and São Paulo the nuisance is general; it seems to be in the air; every blade of grass has its colony; clusters of hundreds adhere to the twigs; myriads are found in the bush clumps. Lean and flat when growing on the leaves, the tick catches man or beast brushing by, fattens rapidly and at the end of a week's good living drops off, *plena cruoris*. Horses and cattle suffer greatly from the *Ixiodes*, and even die of exhaustion. The traveller soon wears a belt of bites, like the "shingles" of Lancashire. The tick attacks the most inconvenient places, and the venomous, irritating wound will bring on a ricinian fever, like the pulicious fever of Russia. Thus in East Africa Dr. Krapf found a "P'házi bug," which he declared to be mortal; it was the papázi, or tick, which sometimes kills by incessant worry. In East Africa I used to scatter gunpowder over the hut-floors, and to blow up the beasts before taking possession. The excitement of day travelling makes the nuisance comparatively light; but when lying down to sleep the sufferer is persecuted by the creeping and crawling of the small villain, and the heat of the bed adds much to his tribulation.

The favourite habitat is the Capoeira, or 'second growth, where cattle graze. The low scrubs known as "Catinga" and "Carasco" are also good breeding grounds. Annual prairie fires

* Its youth is said to commence with the dry season.

destroy millions ; but the *Capoës*, or bouquets de bois, act as preserves, and the branches are incrustated with them. The tick does not exist at certain altitudes ; yet, when ascending Jaraguá Peak, near São Paulo, I found my overalls coloured pepper and salt. Below certain latitudes, also, the *Ixiodes* disappears. It loves most of all cool, damp places, on the dry sunny uplands, where it acts like the mosquito of the hot and humid Beiramar, and is less common in dry and sunny spots. On the upper waters of the São Francisco River the ticks were a mortification ; when I descended the stream about half way they suddenly ceased, and reappeared only at intervals. It is difficult to lay down precise rules as regards their presence. Water is fatal to them, and animals are freed from them by swimming broad streams. Travellers are also advised to take off the infested clothing, and to hang it up in the hottest sun.

The stranger, with his body painted like an ounce, or like a child's horse plastered with red wafers, applies for a remedy, and receives a dozen prescriptions. All have a common object, to cause the beast's claws to retract, and not to leave the head in the skin, otherwise the result may be a venomous sore, which may last for months and even years, at times inducing dangerous cutaneous diseases. Some apply mercurial ointment ; others bisect the tick's body with scissors ; some insert into it a red-hot pin. The people apply snuff at the end of a cigar, and when much bitten they wash with spirits and a strong infusion of tobacco, followed by a tepid bath to remove absorbable nicotine.* In many places, when attacked by a score at a time, I found these methods too slow ; the easiest plan was to pluck off the animals before they had taken firm hold, and to wash away the irritation with country rum and water.

The general cure for the plague will be clearing the country of its ragged and tangled thicket and wood, here called *Mato Sujo*, or dirty forest, and by substituting a cleaner growth. There are many tick-eating birds ; for instance, the *Caracára* buzzard, that performs kindly offices to cattle. Unfortunately, they are not protected by law in the Brazil.

The decrepit greybeard, our host, after venting upon us his independence, consented to cook some beans, rice, and onions,

* I met in the Brazil a French traveller who was painfully intoxicated after rubbing his skin with a mixture of tobacco and native rum.

which he added to the contents of our provision basket. His hovel was filthy as his person, and his kitchen excelled the average pigstye, yet he was miserly, not poor. Though seventy years old, he was living with two negroes; there was only one bed in the house, and no amount of coaxing, not even a glass of Cognac, would persuade him to vacate it. He was in years, and required his comforts. He had lately suffered from the "amarellão,"* a kind of jaundice here common. He would hardly permit a hammock to be swung, for fear of injuring the walls of stick and mud. The conversation between him and his charmers lasted nearly all night. I was roused from my wrappers on the table by seeing a bowie-knife and a repeating pistol make their appearance. My wife had been kept awake by a curious kind of whispering, and by hard listening she had heard the dark and ominous words, "Pode (pronounced paude) facilmente matar a todas"—Easy to kill the whole lot. She had forthwith armed herself, and the dog "Negra" began to growl in sympathy. Of course, nothing occurred; the slaughter alluded to was probably that of the host's chickens, whose murder he feared at our hands. Whatever may be the *désagrémens* of Brazilian travelling in these bye-paths, the traveller is, as a rule, perfectly safe.

Next morning we left the old Pongo, whom the troopers called "son of Ganha dinheiro," and "grandson of Paga me logo,"† grumbling that we had stolen his posts and rails for firewood. The dawn light showed us an ugly mud hole, which would make the hair of an easy-going man stand upright; the animals plunged through it panting, and "Chico," the negret, stuck till he was rescued. Presently we were stopped by a wide ditch, where a gate had been. This arbitrary proceeding is common in the wilder parts, and at São Paulo it has lost me a whole day's march. Fazendas and plantations were scattered about; we passed a neat white establishment belonging to Senhor João Lopes Texeira Chaves. He had been described to us as "homem muito brábo," who, if "in the humour," would have refused the "pouso." I ought to have tried the experiment, and doubtless we should have rested comfortably; unfortunately

* In pure Portuguese "Amarellidão." Koster (ii. 19) alludes to this complaint, which he identifies with jaundice. Accord-

ing to him, Africans in the Brazil are very subject to it.

† "Gain-Coin," and "Pay-me-quick."

we had no Brazilian in our party, or everything would have been made easy.

This part of the Highlands is a cold, red land: the Araucarias become numerous and luxuriant; beans and hulls heaped upon the well-swept floors fronting the cottages, show that "mantimento"* is the principal industry. There are signs of stock-breeding, and pigs, gaunt and long-legged, uproot the soil. At 8 A.M. the view reminded me of a sunrise seen from the Peak of Teneriffe. Below us lay a silvery water, flowing and curling before a gentle three-knot breeze; from the distinctly marked shores jutted green tongued capes, and stony headlands; feathery islets protruded their dark heads from the white flood, and far, far off we could faintly discern the further blue coast of the Straits. The deception was complete as the Arabian Bahr-bila-Ma, or "sea without water," and the Mrig-trikhmá, or "deer-thirst" of the Hindus.† Descending, we found the water to be a cold fog, or rather a thin cloud, with distinct and palpable vesicles condensed by the ground. At this season the phenomenon appears almost every morning.

We then breasted a hill-ridge, up which straggled red paths, over a quarter of a mile in breadth. A single house was on the summit, but, gaining it, we were surprised to find Suasuhy,‡ a street of some 300 houses, and banded with broad lines of rough pavement to prevent the red clay being washed down. The lay was east-west, and it was backed by gardens and orchards. In the middle of the lower thoroughfare was the Matriz of S. Braz upon a raised platform of stone, two belfries with a pair of bells, and a restored front copiously whitewashed. The women were in jackets of scarlet baize, the favourite winter wear, and the children hid themselves behind the doorways as we passed by.

* A term locally applied to all kinds of "Munition de bouche."

† The Mirage. The Arabs also know it as Bahr-el-Ghizal, the Deves' Sea, Bahr-el-Mejânin, the Sea of Madmen (who expect to drink of it), and the Bahr-el-Ifrít, or Fiend's Sea.

‡ St. Hil. (III. 2, 262) makes Çuaçu mean a deer in the Indian dialect of the Aldéa de Pedras: thus we should translate Suasuhy, "deer's water." The celebrated naturalist, Alexandre Rodrigues Ferreira, explains the Indian word for stag, Suha assú—may it not be Sua assú, large game?—to signify "big head;" but he derives it preferably from Cúu, to ruminate: Çúu assú then would be a ruminant,

and its young "Çuaçu Merin" (not minor in the sense of small). Casal writes "Sas-suhy;" Pizarro "Sassuhy" and "Suasuhy," Spix and Martins "Sussuhy," and St. Hil. (I. i. 400) derives it from "Cuelu" petit parroquet, and "yg" water—Rivière des petits parroquets. Mr. Walsh writes "Sua-Suci, or Sussuy," and heard about it some tale which reminded him of the Arc Philenorum—he was, it seems, a greedy recipient of "humbug," that reverend man. Burmeister prefers Suassui, the "Almanak" Suassuhy. Vulgarly it is written Sassuhy and Sassui, and is translated "Veada com filho," doe and fawn. In the Province of São Paulo there is a "Sua-Mirim," explained to mean the little doe.

Senhor Antonio José Cardoso, of the Hotel Nacional, gave us hot water, clean towels, and a good breakfast, all much required.

At 11 A.M. we remounted, and felt the sunheat after the cold damp dawn. The nearest ascent, where stands the Chapel of Na S^a dos Passos and the village school, gave the first of many pretty back views. The road was a rough cross-country affair, over a succession of ground waves, divided by rivulets that feed their main drain, the Paraopéba. After a short hour we crossed the bridge of this stream, which was red with gold-washing; even after discharging into the São Francisco, it is said to preserve for some distance its ruddy tinge. Near the fazenda of Senhor Col. Luis Gonzaga we found a dozen gipsies, all men, resting tentless on the ground, whilst their beasts grazed on the roadside grass. These mysterious vagabonds are rare in São Paulo, and numerous in Minas, where they are horse-chaunters and hen-stealers, as everywhere between Kent and Catalonia. They are evidently a different breed from the races around them, and their long, wavy hair is the first thing remarked. I shall reserve for another volume a detached notice of the Brazilian "Cigano"—that object of popular fear, disgust, and superstition.*

Passing the Piquiry stream, we found the land greatly improved. It produces several kinds of manioc, and the red variety (*Mandiora roxa*) here ripens in five months. There were long slopes green with grama (*Triticum repens*), and the thickets were rich in climbing Cyperacea sedge, which, mixed with the young Capim Gordura, makes excellent forage. This plant is known in the Brazil as "Andrequiá," "André's knife," a mixed word, Luso-Indian,† which well expresses its powers of cutting. The road was hedged with a gorgeous growth of golden broom, profusely blossoming, and reminding the European not a little of his honeysuckle. The people call it the "flower of St. John,"‡ because it is most beautiful in their mid-winter, when floral beauties are comparatively rare. It has justly claimed a place in poetry.

Outra engraçada flor que em ramos pende
(Chamão de S. João),§

* So little is known about the subject that the usually well-informed Anglo-Brazilian Times ignores the presence of gipsies in the Empire.

† According to Captain Speke (*Journal*, &c., chap. xiii.), Mtesa, the despot of Uganda used to have his subject-criminals cut to pieces after death, not with knives,

which are prohibited, but with slips of sharp-edged grass.

‡ Flor de S. João.

§ Another graceful flower with pendent twigs

(Named "of St. John").

Caramurá, vii. 36.

says Fr. José de S. Rita Durão. Remarkable, too, were the snowy petals and the long green pods of the leguminous shrub with cloven-hoofed leaves (*Bauhinia forficata*, the mororó of the Indians); here it is called “unha de boi,” or, as some prefer, “de vaca.”* Another pretty growth is the Poaya, a kind of *Ipecacuanha*,† “the little plant near the path,” which it beautifies with its small red and yellow trumpets. Here I noticed that our Brazil-born Africans had preserved their home custom of barring the wrong path with a twig laid transverse.

The little village of Redondo has a chapel dedicated to N^a S^a de Ajuda, and, better still, a charming prospect. Beyond the foreground of forest and green grass springing rankly from the ochreous purple soil, a colour here known as *sangre de boi*,‡ falls a basin of regular slope and sole, rising on the far side to the feet of a bluff stone wall towering in the air. This range, now to our east and north, is called in some maps “Serra de Deus te livre,”—of God help you!—doubtless from the perils of the path. It is more generally known as the “Serra de Ouro Branco,” from a town on the direct highway—we see its white line threading the ravines—between Barbacena and Morro Velho. The grand pile will long remain in sight, but a bulge in the ground concealed from us the settlement.

Santo Antonio was first, and is still entitled White Gold, in opposition to Ouro Preto, or Black Gold. The latter§ is darkened by a little oxide of iron. The former is naturally alloyed with platinum||—a rare formation. The new metal discovered only two centuries and a quarter ago, and now used even for watchworks, is supplied in Minas by the gravels of streams flowing

* “Bullock’s Hoof,” “Cow’s Hoof.” The System prefers *Unha de Boi*, and ranks it amongst the astringent mucilaginous plants.

† Poaya is in the Brazil a generic term for this species of *Rubiaceæ*. The true emetic root is distinguished as *Poaya Verdadeira*, or *de botica*—of the apothecary’s shop. The System derives “*ipeacuanha*” from *ipé-caá-goéne*, “the little plant near the roads:” it is rather “the little plant which excites emetism” (*goéne*), and doubtless the wild mediciners well know its use. Being much used in certain feminine complaints, it may mean “the little plant of the woman” (*Cunha*). The word has been corrupted to *Epicacuenha* and *Picahonha*. There are many kinds,

the *Ipecacuanha-preta* (*I. officinalis ar-ruda*); the *I. branca* (*Viola Ipecacuanha*, or *Pombalia Ipecacuanha Vandelli*).

‡ “Bullock’s Blood.”

§ Mr. Walsh (ii. 125) says that black gold “contains an alloy of *silver*, which acquires a brown tarnish by oxidation when exposed to the air.” This is anything but correct.

|| D. Antonio de Ulhoa, a Spanish savant travelling in Peru (1748), speaks of it as the third perfect or noble metal. The name originally given was “*Platina*,” little silver, the diminutive of “*Plata*,” which, in Portuguese, would be “*Prata*” and “*Pratinha*.” Europe has, I presume, preferred the barbarous “*platinum*” to assimilate it with *ferrum* and *cuprum*.

through table-lands and low hills. A piece weighing half an ounce was found in the Lavras, or diggings of the Barão de Itabira, near Marianna. Harder than iron, and much resembling gold, it gave great trouble to the old founders who wasted upon it their solimão (corrosive sublimate), and wondered to see the pale brassy bars which "touched," however, twenty-two carats. Dr. Couto says that about 1780 an unknown individual took a portion (parcella) of it to the Government melting-house at Sabará. As it was uncommonly refractory, as it split in two, and cracked round the impression, the officer declared it worthless. The disappointed miner disappeared, remarking that he never thought that it could be valuable, as he could find horse-loads of it. Although it was conjectured that he came from near the little village of Santa Anna dos Ferros, the valuable deposit has never been brought to light. The mineralogist examined the ingot which he found at the Intendency of Sabará; it weighed thirty to forty oitavas, or eighths of Portuguese ounces, and was platinum, with a fifth part of gold. Some local paper credited me with having rediscovered the mine—I wish that I had.

About 3 P.M., as the ride was becoming delightful, we came to a hill crest, and Congonhas showed itself suddenly, as Trieste is, or rather was, sighted from the old carriage-road. The situation is on the southern side of a charming valley, an oval whose long diameter, from north-east to south-west, is formed by the Rio Maranhão,* or "Skeiny Stream." The silvery water flows over land set in emerald verdure, a rich margin of meadow land, rare in Minas, where the bottoms are narrow. Jags and gashes of white, red, and yellow clay on the upper bed are the only vestiges of the once rich gold mines. To the north is a vast rugged ridge, straight and wall-like; it is called Serra (de N^a S^a) da Boa Morte, from a village and a chapel of that invocation. Its culminating point is the Peak of Itabira, which we shall presently see, and here it forms a semicircle extending to the Congonhas Mountains, a massive pile to the west. Eastward is the great chain of Ouro Branco, which alters strangely at the different angles of view.

At first glance Congonhas appeared to be all one church and

* Maranhão (anciently written Maranham) is a skein, a tangle: "arvoredo emmaranhado," for instance, would mean

"matted bush." The little stream rises to the S.E. near Queluz, and winds round to the Paraopéba River.

convent. Presently a second temple appeared on the further side of the riverine valley; it was double towered, and the colours were white, bound in black, like the N^a S^a do Monte, Madeira, which strangers and seafaring men will call the "convent." Lime-washed houses dazzling in the slanting glance of the sun were scattered in a line on the transverse axis between the two fanes. We descended a rocky and paved ramp of most unpleasant pitch, and soon found ourselves under the roof of the Alferes (Ensign) Gourgel de Santa Anna. He made us grateful to him for ever by giving us warm baths and "planter's coffee,"* and he kept us waiting for dinner only three hours.

* "Café de fazendeiro;" coffee which the wealthy planter drinks, not the "água de Castanha," Chesnut water, of Portugal,

not to speak of other lands. The former leaves a yellow tinge when poured out of a white cup, the latter does not.

CHAPTER XVII.

AT CONGONHAS DO CAMPO.*

Distante nove legoas desta terra,
Ha uma grande Ermida, que se chama,
Senhor de Matosinhos,

Cartas Chilenas, IV.

"Some nine leagues, stands a great oratory, which is called The Lord of Matosinhos."

N^A S^A DA CONÇEICAO, here a favourite invocation of the Bona Dea and the Magna Mater, is a Mineiran Loretto; one cannot but wonder to see such labour in a hamlet of 600 souls, unassisted, moreover, by angelic hosts. The gold-washings explain the cause; a deserted tenement still shows the well-carved scutcheon of some old Fidalgo; moreover, at the beginning of the last century the Indians, now extinct, were still in the land, and worked willingly, or were made to work, at ecclesiastical architecture. The Brazilian traveller often finds in wild places solid and stately buildings which could not be attempted in the present day. The church of Congonhas has no grounds or estates settled upon it: moreover it has lately lost a dozen of its few slaves, and the general opinion of enlightened Brazilians is decidedly against the successors of the Apostles binding persons to service. But from the 11th till the 14th of last September is its Romaria, a mixture of "patron" and pilgrimage. Some 7000

* Congonhas is called "do Campo," to distinguish it from Congonhas de Sabará. The name is common in the Brazil, having been applied by troopers and travellers to the many spots where they found the several varieties of Ilicineæ, of which the most valuable is the Mate, or Herva do Paraguay (*Ilex Paraguayensis*, despite St. Hil. who, III. ii. 249, obstinately defends the incorrect old form *Paraguariensis*). I will not describe the shrub, this has been done by every writer from Southey downwards.

The Brazilian term "Congonha" is generic, meaning all the shrubs that make

"Paraguay tea." It is also specifically applied to the *Ilex Congonha*, common in Minas and in Paraná. The Congonha Cimarrão is only the infusion, drunk without sugar. Caraúna is Congonha of an inferior kind. In Mr. Lucock (p. 523), we read "Congonha is, in writing, commonly substituted for Caacunha. The name is derived from a plant, an infusion of which is held to be an excellent remedy in female complaints." Thus he confuses with Ipecacuanha the Congonha, which in the Tupy tongue was known as Caa-mirim, the little leaf.

souls then lodge in the houses which lie empty for the rest of the year, and the free gifts of many coppers and a few notes amount to some £2000 per annum, here worth £20,000. The brotherhood of Bom Jesus de Matosinhos distribute the alms amongst the people of the holy hamlet. There was no better way—be it said with due respect for popular belief—of founding a town in the old Brazil than by instituting a Growing Stone, a Healing Cross, or a Miracle-Working Image:* these things were found easily, as we now create a Spa by burying rusty nails with quassia and charging sixpence for admission.

The director of the college being absent, we called upon his vice, the Rev. Padre Antonio José da Costa, a son of São João; he had resided here only a month. He kindly reproved us for going to an inn, when there was so much vacant lodging for True Believers, and, calling for his key-bunch, he set out to show the lions.

We will begin with the beginning. The steep and badly-paved calçada which we descended yesterday has a branch to the right: this places the stranger at the base of a tall brow, upon which the Loretto is charmingly situated. In front is the church; to the right or westward is a long range of double-storied buildings, white above and yellow-ochre below: the third or eastern side of the hill-square is formed by poorer buildings, “porta e janella,” also pilgrims’ quarters.

Ascending the hill—typical, I presume, of “the hard and narrow way—and bisecting the square,” is a dwarf avenue of buildings called the Sete Passos, the Seven Chapels of the stations. The two lowest are old, the next pair is modern, and three are yet to be built when the contributions of the pious shall suffice: this last contains two of the normal fourteen, “stacions of Rome;” and, when finished, the place will be used as a burial ground for those who can or will afford it. In former days the fine pavement of cut stone round the temple cost a total of £40: now a single station represents £600. The expense is solely in the labour, the whole country is building material.

These oratories are low squares of solid masonry whitewashed,

* Such images are called *apparecido*, or *apparecida*, from their “appearing” on the sea-shore, in streams, in caverns, et le reste. It is the fashion now to deny that Catholics worship images; this is a truism

as regards the educated; with the vulgar it is distinctly the reverse of fact. And by the operation popularly called counting noses, how many of these are found in proportion to those?

with terminals at the four angles, and "half-orange" domes and finials. Windowless and entered by a single door, they suggest the humbler sort of "Kubbah," which protects and honours the remains of Shaykh and Wali in Arabia and Sindh. The lowest, number 7, lacks inscription, and represents the Last Supper. Wooden figures, mostly mere masques or "dickies," without bowels or dorsal spine, dressed like the traditional Turk of the Christian Mediterranean type, are seated round a table richly spread with tea (or maté) pots, cups, liqueurs, and meats. Our Lord is saying, "One of you shall betray me." All look with quaint expressions of horror and surprise, except Judas, who sits next the door, hideous of aspect, and caring as little to disguise his villany as Iago upon an English stage. My wife complied with the custom of the place, took the knife from Judas his platter, and dug it into his eye, or rather into a deep cut which cleaves his left malar bone, and then smote with it his shoulder. This poor Judas! who, upon the D'Israelitic principle duly carried out, merits the affectionate gratitude of a Redeemed Race.

The next station, the Agony in the Garden, presents a peculiar inscription, which is supposed mysteriously to be Greek. I have copied it for the benefit of Grecians:—

ΕΤΙΟΔ *(sic)* CTVS ΙΠΔ *(sic)*
 ΓΟΠΙΔ FΙΟLIXIVS
 ΟΙΔΒΩΤ

The first of the new stations shows the mercurial and somewhat Hibernian St. Peter striking off the ear while the Saviour is about to heal the wound. The inscription *Tanquam ad latronem, &c.*, does not merit notice; the Pagan soldiers do. Surely such Roman-nosed warriors never could have existed unless they used their proboscis as the elephant uses its trunk. But grotesque as they are, and utterly vile as works of art, these wooden caricatures serve, I have no doubt, to fix their subjects firmly in the public mind, and to keep alive a certain kind of devotion. The civilising, or rather the humanising, influences of the parish service and the "patron" have already been alluded to.

The church is reached by four semicircular steps, guarded by an iron railing: here an inscription commemorates the origin of the pilgrimage.

MDCCLV.

VAD_ABUN_A JESU MATUSINOR_AP_A R_A BENED XIV

PRIMUS HIC CULTUS OBLATUS

A . MDCCLVIII.

R_A N_A F_A JUSEPHO_A

TEMPLUM CONSTRUCTUM

MDCCLXI.

TANO_A REÆDIF

CUI FAXIT

ÆTER-

NITAS.

The beginning was a rough way-side cross of dark wood bearing a rude figure of our Lord, and dedicated to N^o S^r. do Matosinhos. About 1700 it began to work miracles; the ground was consecrated, and a small chapel was built, the germ of the present church and seminary.

Before the entrance a double flight of broad steps diverges and meets upon the adro, the usual spacious paved area, fronted by a handsome stone balustrade, and commanding a lovely view. At the angles of the sets of steps, and at intervals in the front of the platform, are twelve gigantic* figures of the four major prophets; sundry of the dozen invidiously distinguished as the minor being nowhere. Each figure is habited in conventional Oriental costume, bearing a roll engraved with some remarkable passage from his book, in Latin and large old letters. The material is steatite, found in the neighbourhood, and the workman was the ubiquitous Cripple, who again appears upon the façade. The group has a good effect at a distance, and in the Brazil the idea is original: it compares, however, poorly with the Bom Jesus de Braga, near Oporto, and the humblest of Italian holy places.

The façade is of course whitewashed, all except the cut brown stone at the corners: there are two windows assisted by a very simple rose-light: small apertures also are made in both the flanking towers. These belfries are domed and finished with extensive terminals, an armillary sphere supporting an angel

* The height is a little above 8 feet. On the right are Jeremiah, Ezekiel, Hosea, Joel, Nahum, and Habbakuk, fronted by Isaiah, Daniel, Amos, Obadiah, Jonah, and Baruch the Scribe. Thus the four "great prophets" are not in order of precedence.

All agree that the statues are twelve, yet in a memorandum given to me I find them thus described: to the right Ezekiel, Habbakuk, Hosea, Joel, and Nahum; on the left Baruch, Daniel, Jonah, Amos, and Obadiah.

who bears a cross. The entrance is floridly carved in the greenish saponaceous stone, so common in these parts; the cherubs and the instruments of the Passion are better executed than usual. The most artistic features are the doors of massive hard wood, cut in highly relieved rays, and painted ecclesiastical green. I saw this style for the first time at old Olinda, and greatly admired it: some of the bosses were raised five inches.

Little need be said about the interior: the walls are panelled and frescoed with tawdry paintings, and hung with penny prints, whilst the images are below criticism. There are four side chapels, the first on the left shows St. Francis de Assis, the favourite St. Francis of the Brazil, and the second on the left has a S. Francisco de Paula, supposed to be a life-like copy of the Parisian statue. The organ-loft, over the principal entrance, has a small instrument, and the choir, on its left, projects into the body of the church. There are two pulpits of bare stone standing upon Gothic animals; the lateral cherubs are well cut, but the canopies are inferior. There are two box and two open confessionals: the former generally contain a curiously pierced stool. The latter, sometimes made portable, are boards with a sieve-like grating, supposed to separate the seated saint from the kneeling sinner. Perhaps this religious exercise of olden date might in these ages be modified to a good purpose, by insisting that priest and penitent should be strangers to each other, and as both would doubtless strongly object to and abhor this measure, it would add to it another and a fresh charm of mortification.

The sanctuary has a tunnel roof frescoed with two curious productions—"the Trinity in Heaven, and the Burial of our Lord." Here also are the fourteen stations of the Passion. The high altar shows a large figure of N^o S^r do Calvario: it is supported by Santa Anna tending the Virgin, S. Domingos, Sta. Luzia, Sta. Veronica with the veil, and the Roman soldier with the lance. In the base is an altar-tomb, and when a board is removed it exposes the Cadaver, the grand object of the pilgrimage, the full-length effigy of N^o S^r De Matosinhos—a dead Christ, with angels kneeling and praying. The faithful prostrate to it, and kiss the hand with immense devotion, as is proved by the sinking of the floor close in front. On one side is a small "presepio" or

crib of Bethlehem. Four fine chandeliers of massive silver illuminate the high altar and the body of the church.

The sacristy has the usual small lavatory and manutergia, with pictures, like the rest of the building, and two bishops of Marianna upon the ceiling. On the east is the Miracle-room,—a long, low hall containing *exvotos* in hundreds, memorial tablets recording cures and escapes, and waxen models of unsound limbs made whole. Here is preserved the old original wooden cross upon which is cut—

INRI
(the crucifix)
NO. S. D.
MATVZINHOS.

Outside and east of the church are two stones embedded in the area close to the walls; they appeared to me quartzose granite. One is the Growing Stone, which, despite the annual attraction of many kisses, steadily increases; the other is not crevice in its faculty. Our priestly guide sensibly remarked, he would not answer for the fact, but that it might be, as all things are possible to the Creator. This explanation, since the days of “*numquid Deo quidquam est difficile?*” is still popular from London to Pekin; unfortunately it is wholly beside the question; no one denies that the Almighty has power to do what we often doubt that He does. At Iguapé, on the sea-board of São Paulo, there is a brother-stone with like gifts. In both cases the parts around the mineral are trodden upon, scraped, and carried away as relics and remedies. Hence, possibly, the growth. The harmless superstition reminds us, amongst other instances,* of the rent—one foot wide—in a granite rock near St. Levans, when big enough to allow an ass and panniers—homely fancy!—to pass through, we may expect the end of the world, viz., the conclusion of the present quiescent æra of earth, and a recommencement of its convulsions, if convulsionists say truth.

We then visited the college, which began about thirty-seven years ago. Its founder was the late Reverend Padre Leandro de Castro, a Portuguese Lazarist, who also instituted the D. Pedro

* *Exempli gratiâ*, the venerable London Stone of many fables. Doubtless these petral marvels originated in the Tu es Petrus, &c.

Segundo establishment at Rio de Janeiro. Over the doorway is the date 1844, showing the latest addition. The building is large, with ten front and some forty side windows; but we saw nothing of the curiosity described by Mr. Luccock: "Behind the church is another sacred singularity,—a garden in imitation of Paradise, where Adam and Eve, beneath the cross, are sitting beside a fountain, in all the nudity of innocence."

The present director is the Rev. Padre João Rodriguez da Cunha, a native of Sabará, and his salary, I was told, is 180*l.* per annum. The Provincial Government is supposed to contribute a yearly 400*l.*; but our guide complained that the assembly had not paid it for two years. There are seven professors and three priests for spiritual matters; the pupils average between sixty and seventy, and all wear the Soutane. There can be no better situation for a college. During the last three years, neither doctor nor apothecary has been known at Congonhas, and as often happens to passengers and crews of ships without surgeons, the want has not been felt. Of course we were told all about the normal old woman who had outlived the century.

It is said that the Capuchins proposed to take charge of this academy, but added an impossible condition—exemption from civil law, and subjection to their diocesan only. This was judged—*procaciter atque injuriosè?*—"a tendency to obsolete theocracy," a "revival of the days of Gregory VII. and Innocent IV." Sensible Brazilians have an aversion to the ecclesiastical Alma Mater, with her curriculum of Trivium and Quadrivium; where youth is taught by *esercizi spirituali* contempt for worldly matters; where politics are subject to religion; where state becomes hand-maid to Church which inculcates unquestioning belief, blind obedience, austerity, asceticism, and self-abnegation,—virtues wholly unfitted for the citizens of a free commonwealth: they exclaim against philosophy being made the ancilla of theology, and to traditional fancies usurping the place of the teachings of nature; they do not wish to see human reason represented as a deceiver, and liberty of the press condemned with the "deluge of infernal ink," and seventy-eight other "modern errors." Moreover, there are not a few ugly reports of a peculiar hygiene being introduced into these seminaries, such as nitre being mixed with the dietary.*

* Appendix to the Presidential Relatorio of Minas for 1865, p.38. A very able paper.

On the other hand there is no doubt of the superior teaching and discipline imported by the regular clergy of Europe into the Brazilian establishments. And here, not being entitled to offer an opinion upon such points in any country but my own, I leave this great dispute, which is not likely to be settled for a handful of years.

We then descended the rest of the steep *calçada*, passing on the right the ruined chapel of São José. At the bottom is the little river Maranhão, which formerly divided the *Comarcas* of Villa Rica and Rio das Mortes, it is crossed by the usual wooden bridge. On the northern bank is the hamlet of Matosinhos fronting Congonhas, "in the same manner that Gateshead does with respect to Newcastle-upon-Tyne." It has a *Matriz* dedicated to *Nª Sª da Conceição*, with a tolerable *façade*, and near the entrance an emblematic coat-of-arms cut in soapstone. The interior was still under repairs. About thirty years ago it was struck by lightning, and one man required the "triste bidental."

I visited the old gold-diggings, and found them of little importance. Caldeleugh has left an account of the industry* which was still thriving, in 1825. The precious metal, twenty-two carats fine, was found in the pores and cavities of friable or rotten quartz injected into green-stone. Mr. Luccock detected dust-gold "among schist-clays, and the other component parts of the ground," and the latter contained the ore "with equal certainty and in nearly equal quantity, whether of the prevailing red hue or any of the shades of brown or yellow." The matrix was crushed by stamping-mills, and the freed gold was made to run in the usual way down streaks or inclined plains, where hides placed in a contrary direction to the lay of the hair caught the heavy particles.†

We returned our best thanks to the amiable vice-director; his attention and affability deserved all our gratitude. Before shaking hands he gave us, by way of memento, a parcel of toothpicks made of a highly-prized liana, locally called "*Cipo de salsa*." How comes it that the "*palito*," cleanly and comfortable, is still obnoxious to popular prejudice in England?

* Travels, ii. 227. Mr. Walsh (ii. 173) passed through Congonhas, describes the Paraguay tea, but says nothing of the temple or the gold mines. Yet he had travelled amongst the Turks, and had

written a book upon Turkey.

† This old system is still in use at Morro Velho. I reserve a longer notice of it for a future chapter.

CHAPTER XVIII.

TO TEIXEIRA.

São pois os quatro, A A por singulares
Arvoredos, Assucar, Agoas, Ares.

Manoel Botelho de Oliveira.

It was early noon when we left Congonhas. Once more we descended the hill and crossed the Maranhão ; we then struck up the little valley of the “ Ribeirão de Santo Antonio,” a surface drain of the “ Serra da Bôa Morte.” The soil was mostly chalk-white, like kaolin, and the banks of the hollow ways, once level with the ground, and now sunk many feet below it, worn down by torrential rains, and by the tramp of man and beast—still showed stiff deep red clay. The cross-country track abounded in artistic views of “ salvage soyle.” Congonhas, like a pearl set in emeralds, lingered long in sight, and the Ouro Branco Range yet gleamed high, towering in the limpid air.

At this season the weather is regular as a chronometer. The nights are raw and foggy in the low-lands ; in the upper levels cold and clear, with high raised skies, planets that make the moon look very dowdy, and sparkling stars that have not forgotten to twinkle because we are so near the equator.*

Aurora comes in clouds, and yet the cloud
Dims not but decks her beauty :

Between 9 and 10 A.M. we have the full benefit of the day-orb, whose effulgence ignores a thread of cirrus, a vesicle of vapour. After three or four hours of the solar distillation, wool-pack and boulder clouds gather in the east ; they float high in the blue immensity, then they coagulate as it were, forming mackerels' backs, and finally they weave purple hangings, innocent, however.

* In fact, I often thought on the Rio de Janeiro, that they danced more merrily than usual.
São Francisco, even when the air was

of thunder or rain. At times we prepare for wind and wet, but all agree that the signs are the signs of increased cold. It will not always be so. At 3 P.M. we have no more reason to complain of the heat, and the sunsets are cool and clear, delightfully tranquil, the evenings of the lotos-eaters.

After a couple of hours, we entered a land of iron, all black and red spangled with mica. The darkest soil was a degradation of the mysterious "Jacutinga," and the yellow-brown ruddy colour came from hæmatite, clay iron stone, often worked up in nodular or botryoidal pieces; there was also compact martite or magnetic iron, which often yields perfect specimens of the double pyramid, and in places a crust of the quartzose amygdaloid, called "canga." The chalybeate water ran splendid as gems over its bed of mineral. Only two houses were in sight, the Fazenda do Pires, with its avenue of Araucarias, and deep embosomed in the hills, an iron foundry belonging to the Commendador Lucas Antonio Monteiro de Castro.

We then began to ascend the Serra de Santo Antonio, an east-west buttress of the Ouro Branco Range. The little block lies on a parallel with and about thirty miles north of the Espigão Geral or Serra das Vertentes.* It is a mass of huge clay mounds ribbed at the sides with outcrops of finely laminated clay-shale and building slate; the deep hollows separating the bulgings are densely timbered and luxuriantly green, the effect of the water-courses and the nightly mists. The uplands sparkle with bud and blossom, mostly pink and yellow, and the grass carpet looks smooth enough to be stroked by the hand. At this season it is a sheeny surface of greenish yellow, with dashes of broken colour, and the edges seen against the air look worn like frayed velvet. The path wound along the sides of these mound-hills, and a false step would have entailed a roll of 250 feet. Not a sign of habitation was in sight, except some roofless ruins in a hollow to the right, which suggested the haunted house. In fact the scene was unusually wild and romantic.

From the summit of the basin rim we saw far below us a forked stream threading the hills between avenues of thick tangled

* In Burmeister's map, the Serra de Santo Antonio is the apex of the angle formed by the Serra de Ouro Branco from the south-east, and the Serra da Cachoeira

from the north-east. Thus it appears as a great westerly bay in the Serra Grande or do Espinhaço. In Geber's map neither the feature nor the name is found.

growth. The main branch flowing west to east was faintly blue; it receives a streamlet whose waters, slightly green, enter from the south-east. They drain the northern wall of the Santo Antonio Range, which here separates the Valleys of the River Paraopéba and the northern Rio das Velhas.* Both rivulets are described as “*córregos desconfiados*”—not to be trusted—and the angle of descent shows that their floods are dangerous. Anastomosing a little about the ruins of a bridge, which was carried away by a freshet in January 1867, they take the name of Rio da Prata.

Here then under our eyes is the task which is to occupy me some three months of river navigation. The people declare these baby waters to be the head waters of the Rio das Velhas. As will be seen, a larger volume comes from a section of or bulge in the Serra Grande (do Espinhaço), called “*Serra de S. Bartholomeu*,” and lying about thirty miles to the north-east. The Silver River, however, can boast of superior length; it is in the south-easternmost division of the great basin whose main drain is the Rio de São Francisco.

Of undefinable interest is the first sight of a newly born stream in these new lands, suggestive as the sight of an infant, with the difference that the source must grow to riverhood, whereas the child may never become a man. A panorama passes before the eyes. The little stream so modestly purling down its channel shall presently become a mountain torrent with linns and kieves and cataracts and inundations that sweep all before them. Then will it widen to a majestic river, watering acres untold, its banks clothed with croft and glade, with field and forest, and supporting the lowly hamlet and the mighty city. Last in the far distance spreads the mouth and looms the port, busy with shipping, the link in the chain of communication which makes all nations brothers, and which must civilize if it has not civilized mankind. Standing at the small fount we see these vistas with a thrill of pleasant excitement, not unmingled with a faint sensation of anxiety. How many risks and hardships are to be undergone, how many difficulties are to be conquered before the task can be accomplished, before we can see the scenes of what is about to be.

* It must not be confounded with the Southern Rio das Velhas, another considerable stream visited by Castelnau. The latter river rises near Dezenboque, flows to the north-west, and discharges itself

into the Southern Paranahyba, the great northern fork of the Paraná-Paraguay-Plata. For the future, whenever the Rio das Velhas is spoken of, Northern will be not expressed but understood.

The Rio das Velhas, River of the Old Women, derives its name, says local history, from the three old squaws found squatting upon its banks by the Paulista explorer "Old Devil," Bartholomeu Bueno, when in 1701 he first struck the stream at Sabará. The etymology is somewhat loose and lame. The red men, we are told by Sr. Rodriguez Valerio, a competent authority, called it "Guyaxim," and a corruption of this word becomes Guaicuhy,* still found on obsolete maps. This would mean the "old squaw's stream" (in the singular), and probably the early explorers mistranslated it into a plural, whilst their descendants invented the now classical three old women.

We forded the two forks that form the "Silver River," and, when in them, the waters appear crystal clear. The beds and the strips of riverine valley were strewn with alluvium gallettes, water-rolled stones and pebbles. The harder talcose clays were cut into peculiar shapes: some resembled the balls and eggs used by the Indian slingsmen; others were not to be distinguished, except by the practised eye, from our rude drift-hatchets. They probably suggested the weapon to the aborigines, and were formed by nature as artistically as the celts used by the seaboard tribes to open their oysters and shell-fish. On a future occasion I shall have something to say about the "Stone Age" in the Brazil, which like every other great division of the globe hitherto explored, distinctly shows the epoch: † it shows every variety, from the rudest palæolithic wedge (coin) of sandstone to the neatly chipped arrow-head of rock-crystal, and the neolithic or polished stone axe, rivalling any Celtic hatchet. Moreover, in the far interior it has not yet been thoroughly superseded by the Age of Iron.

We toiled up the very red further side of this interesting basin,

* The word is apparently an agglutination of Goiamim, old (woman), cunha (woman), and ig (water). Possibly it may be Cacuaig, which would bear the same signification. Yves D'Evreux gives the six ages of womankind:—1. Peitan, babe; 2. Konguaintimiry, child; 3. Konguaintin, adolescent; 4. Konguanmoucou, woman; Konguan, woman; 5. Konguanmoucou-poire, woman in force of age; and 6. Ouainy, old woman.

† The Brazil has a well-defined age of wood, and the indigenes still use wooden clubs and swords. I am happy to find the universality and ubiquity of the "Stone

Age" asserted by that sound anthropologist Mr. E. B. Tylor, "Researches into the Early History of Mankind, and the Development of Civilization." These rude drift-hatchets are alluded to in "Notes on the Antiquity of Man" (pp. 85—87, Anthropological Review, No. 1, May, 1863, Trübner & Co.); and the literature upon the subject is becoming imposing.

To me the era is especially interesting, because it embraces the period when men had not, or what is much the same, knew not that they had souls. The soul, indeed, seems to have been the discovery of the Bronze Age.

guided by a mamelon cresting the spine. Another large hollow lay in front and beneath us; the surface where not cut up by the *esbarrancados* or water breaches, showed low timber above and large tree clumps in the depths, a test of superior soil and better shelter than its southern neighbour. On the right was the little mining village, "São Gonçalo do Bação," with white church and brown huts. The lowest level was a green patch known as Teixeira, rich with palms and bananas, maize and manioc, cotton and the fibre-bearing *Yucca* or bayonet plant: it looked the quietest of spots, where a man might most easily be consumed by age.

The northern background was a picture. We now stand full in the presence of the great Itacolumite and Itaberite formations. The sinking sun, canopied by snowy cloud lined with lively crimson, cast a glow of gold upon the castled crag, "Itabira do Campo,"* the Stone Girl of the prairie, which the Cornishmen called the Peak of Cata Branca. Early in the march we had seen it, and it then looked like a hill crowned with two blocks of masonry somewhat out of the perpendicular. From the basin rim of the Silver River, looking north-north-west, the rocks that jagged the summit appeared to form a single block. Here the head has a trident of three tall black prongs, and when winding eastward we shall often see it rising sudden and single like the Chimney Rock of the Plata River. Its form and plan recalled to mind many a half-forgotten legend of enchanted stronghold and magic mount, and curious tales are told about water springing from its base, and a shaft sunk by Nature in its depth.

* Dr. Conto, who found crystallized copper upon its flanks, translates the name "Moça ou rapariga de pedra." St. Hil. renders *Yta bira* "pierre qui brille." "Yta," more often written "Ita," occurs in many Brazilian compound words borrowed from the aborigines, and means rock, stone, or metal, especially iron; whilst "bera," or "beráb," is to flame. The usual explanation of "Itabira" is pointed stone. Castelnau calls it "Itabiri," but the loss of his MSS. compelled him to write much from memory. The distinctive "do Campo" prevents confusion with the Itabira do Mato dentro ("of the interior forest"), a magnificent pile to the north-east. We shall find also *Catas Altas do Campo* opposed to the *Catas Altas do Mato Dentro*.

This geographical feature will be noticed in Chap. 30.

From these Itabiras, the reader will remember, is derived the name of the mineral "Itaberite," a slaty rock of granular quartz and iron of several varieties, often pure oxide. Eschwege, who fathered the word, describes the mineral as ferruginous schist, and makes it the matrix of the diamond. At this Itabira do Campo begins the westernmost iron-Cordillera, described in this portion of Minas Geraes. It will run to *Curral d'El-Rei*, cross the *Rio das Velhas* at *Salará*, and near it form the *Serra da Piedade*. In its lower slopes gold is abundant, mostly associated with iron.

We passed a ranch, whose tall and long-bearded owner, with felt broad-brim pulled low over his brows, regarded us smiling and vouchsafed no reply to questions concerning the night's rest. This individual, known as "João Militão," has the reputation of being a "valentaõ" or country bully, and, worse still, he is spoken of as a "capánga," a bravo or professional assassin. The latter gentry, relics of a barbarous age, are unhappily not yet extinct in the provincial parts of the Brazil. The Pundonor being still a mainspring of action, and the duello being unknown, men use the services of the hired ruffian with little squeamishness, and the enemy is potted from behind a tree like the Irish landlord of the last generation. As education advances and manners are softened by increased intercourse with the world, the disgrace will, like the old Poderoso, become obsolete. We behaved to the Sr. Militão at least as roughly as he did to us, and the next morning he civilly entered into conversation about the parroquets which we were shooting.

Happily we found next door lodgings in the house of José Teixeira, a saddler: he was evidently not rich, but he was kind and attentive, and his wife aided him to make us comfortable upon our little beds of sticks and straw. The third and last "morador" or squatter in this green patch presently came in, armed with a gun, and much excited. Upon the road we had met a small white cur, running purposeless and looking fagged: one of our party struck at it with a hunting whip: it did not cry or leave the path, but kept doggedly on without attempting to injure any one. Seeing its skin wet I did not suspect hydrophobia, but arrived at Teixeira, we were told that it had been rabid for some days, and had bitten sundry animals.

CHAPTER XIX.

TO COCHE D'AGUA.

O China alegre, fertil e jucundo,
E o chão de arvores muitas povoado :
E no verdor das folhas julguei que era
Ali sempre continua a primavera.

Eustachidos, by Manoel de Santa Maria Itaparica.

To the right or east of, and about a mile and a half from Itabira Peak, there is a gentle rise, the site of the mines and the village of Cata Branca.* A few details concerning its former fortunes may be interesting: it now belongs to the Morro Velho Company, and better days may again dawn upon it.

The ground, belonging originally to poor settlers, Brazilians and Portuguese, passed into the hands of the Count of Linhares, who sold the concession to the late Dr. Cliffe, an Anglo-American. The latter, a man of true trans-Atlantic energy and self reliance, parted with his right to the "Brazilian Company," raised Jan. 28, 1833, and during that year the superintendent, Mr. A. F. Mornay, completed the purchase.

The mining estate, including the fazendas of "Santo Antonio," which was bought, and "Arédes" (P. N.) which was rented, lay favourably, 4350 feet above sea-level,† within two miles of the

* "Cata" is sometimes erroneously written Calta; it is derived from "Catar," nearly synonymous with "Buscar," to seek, but with the sense of hunting. The miners applied it to a pit sunk in the upper strata till they reached the auriferous matter, whatever the formation might be.

Castelnau (1843) visited, and has left a good historical description of the mine from the observations of M. Weddell. My notes are taken from the Reports of the Brazilian Company 1833—37, modified by reliable information.

† Doubtless much exaggerated. Mr.

Gordon, of Morro Velho, took the observations with a Pelissier's aneroid upon the Serra, not the Peak of Cata Branca. They were on July 12, 1864—

1. Bar.	27.40	Therm.	59°	11 A.M.
2. „	27.37	„	63°	1 P.M.

This would reduce the height in the text to about half. Mr. Gordon also makes the "Itacolumi Peak" of Ouro Preto to bear due east of Itabira. The maps of MM. Burmeister and Gerber place the former east-south-east (39°) from the latter.

Córrego Secco village, four miles or six miles by the long road from Itabira town, and 35 from the provincial capital. The soil was poor, but within a league were large roças or farms in Campo land, which supplied provisions to Ouro Preto.

The Serra of Cata Branca trends where mined from east of north, to west of south. The containing rock proved to be micaceous granular quartz with visible gold, as in California. The strike was N. 15° West, and the dip from 80° to 85°; in some places the stratification was nearly vertical, in others it was bent to the slope of the mountain, and generally it was irregular. The lode, narrow at the surface, widened below from 6 to 18 feet, and the greatest depth attained was 32 fathoms. The quartz formation was of many varieties, soft sugary, hard smoky, common white, and blue, which proved to be the richest; and the sides were hard quartzose matter equally bad for spalling and blasting. The south-eastern end was most productive. On the western side of the quartz were found the ferruginous formations "Cánga" and Jacutinga;" the latter was struck by drivings made below the Serra ridge, here a mass of iron peroxide: the works, however, wanted ventilation, and were abandoned.

The lode, which could not be called a "constant productive," abounds in "vughs" or vein-cavities, tubes, pipes, and branches, called by the Brazilian miner "olhos"—eyes, surrounded by a soft material, mainly running vertically, and richer in free gold than the average. Near these pockets, but not disseminated through the vein, was a small quantity of auriferous pyrites, iron and arsenical. A little fine yellow dust, oxide of bismuth, ran down the middle of the lode, and gave granular gold. The best specimens averaged from 21.75 to 22 carats, our standard gold.

The Santo Antonio lode lay parallel with and east of the Cata Branca. The Arédes mine, 8 miles to the south-west, was beyond the Peak: here the Serra is covered with boulders of hard quartz, very numerous at the base of the great vein. They rest on the common, soft, various-coloured clays of the country, and are intersected with lines of sugary quartz, which gave a little very fine gold. This formation extends far to south and west of Itabira: openings were made in it, and one, the "Sumidouro," was successful. Arédes showed also a small formation of Jacutinga containing red gold, sometimes alloyed with palladium, and

accompanied with oxide of manganese. The soil was good, and it contained 1—2 square miles of arable land that produced all the cereals of Europe.

Mr. Mornay, afterwards Superintendent of Cocaes, and Vice-Director of Cuiabá, began with a salary, besides house and all civilized luxuries, of £3000 per annum, and this was paid out of a capital of 6000 £10 shares. In November, 1833, he was followed by Commander Cotesworth, R.N., who afterwards died at Liverpool. The latter was like all the "Service" superintendents, then such favourites at home, a strict disciplinarian, active and energetic, fond of riding horses till they broke down, tetchy on the subject of his rights, and "zealous in the discharge of his duty,"—which led to disputes. Finding the mine an immense hole, he had to fork* the water which filled the shafts, and to level, dial,† and measure afresh. The mine began with the antiquated practice of "stamping," or rather "crushing," by horizontal millstones of hard, tough, quartzose matter; presently the best machinery in the Empire was put up. In 1835, besides hired labourers, "Cata Branca" employed 38 Europeans, 76 negroes, and 34 negresses.

In 1844 the mine fell in. The sole had become sloppy, and the liquid Jacutinga could not be drained by any mechanical force; the ground was not properly timbered, and the side-thrust increased till it was enormous. The general account is that thirteen workmen, one of them an Englishman, were killed: some increase the number, which others declare to be exaggerated.

The "Cata Branca" failure, one unfortunately of very many, resulted from two causes. Firstly, there was an utter absence of economy, and as Mr. Moshesh justly observes, with peculiar applicability to Minas, even gold may be bought too dear. Secondly, the mine was badly worked. Jacutinga was then an unknown formation, but English miners, especially Cornish men, have learned everything, and consequently they will brook no teaching. Those who do not judge them by their own standard are willing to grant that they have acquired by rule of thumb

* To "fork," is to reduce the water to its proper level till the mouth of the pump hose can be seen.

† The sons of old Kernou used to call

the theodolite a dial, hence "dialling" is applied to underground levels and surveys from a fixed station.

something of mineralogy, nothing of geology. But since the days of Howel or Houël, "king of small Brittany," they have been heaven-born miners with the airs of omniscience. Who can forget the naïve speech of the Cornish gang-captain, who told Robert Stephenson that a north country could not possibly know anything about mining? I have seen the offer of a "practical Cornishman" to do for £50,000 what a "theorist," that is to say a professional man, educated in the scientific schools, could not effect for £100,000. Mr. Practical was believed by a practical public—in England still linger old superstitions about rule of thumb, which makes men easily take the bait—and the consequence was that the practical shareholders soon found themselves safe in Chancery. The fact is that Tre, Pol, and Pen are good men and true, but they must take to heart what was asserted a little farther west, namely, that—

John P. Robinson, he
Said they didn't know ev'rything down in Judee.

We shall trace these same two evils, reckless expenditure and want of exact knowledge, in the history of many other mining adventures. Hence it is that in this land of boundless mineral wealth, so many companies have come to grief, and so many a mine has been, to use the technical word, "knocked."

After a delightfully bracing night, we rose with the dawn; again however the old white garron had strayed, the mules had followed, and the glorious morn had waxed hot before it saw us in the saddle. The bridle-path fell at once into the valley of the Rio da Plata, a baby brook in a sandy and gravelly cradle, a world too wide for its shrunken stream. Six times we forded the limpid waters which ran northwards, we cut the throat of two big bends, each with its drain from the west, swelling the main line, and we halted for breakfast under a fig tree, upon the banks of the Córrego do Bação. The little Arraial of that name, rich in vegetables and fruit trees, was hard by, and the miners came out of their huts to stare and chat. The valley, when we struck it once more, was floored with loose sand, and heaped as usual with "spoil-banks," and mounds of washed red clay. Another hard pull up the left buttress was enlivened by the beauty of the vegetation, and our ears were refreshed by the under-murmur and the bubbling of abundant streams. The birds were more numerous

than usual; the parroquets chattered from tree to tree, a noisy woodpecker* screamed in the bush, and hawks floated high in the mistless air. We then walked carefully down a hideous causeway of rock, paving stones, white earth and sandy dust which rose in suffocating clouds. A hollow lane of incipient sandstone and, here and there, dry walls, told us that we were approaching a settlement.

After about four hours of actual riding we sighted "Itabira do Campo" in a punch-bowl below us. The stream which divides it, running from east to west, is crossed by a tolerable stone bridge, and the banks are used as bleaching-grounds, white with raiment and black with washerwomen. On the south of the "Freguezia" are the chapels of N^a S^a das Mercês and Bom Jesus de Matosinhos; to the west is the Rosario, whilst the body of the village contains the matriz of N^a S^a da Boá Viagem and S^{ta} Theresa. In fact the church accommodation would lodge the whole population, though hardly with comfort; most of the buildings are in a ruinous condition.

We breasted another steep slippery causeway, the entrance street; here there were good houses, but all bore inscribed over their doors the Desolation of Dulness. The heat of the sun induced us to dismount at a shop in the square of Santa Thereza, whose steeple with its tiled roof and splayed eaves suggested a chapel in Switzerland. The people were exceedingly obliging, and gave us coffee with the least possible delay; they had long tales to tell of palmy days, now set in night, when they established their sons, married their daughters to Englishmen, and enjoyed the excitements of loss and gain. "Itabira" thrived with the "Cata Branca" mine, and it decayed when "she" was "knocked." The Itabirenses linger on, barely supported by the Morro Velho market, and the memories of better times hardly suffice to keep alive hope for the future.

Though warned that we could hardly reach "Coché d'Agua" before nightfall, and well acquainted with the horrors of a Brazilian cross-cut after dark, and on an unknown line, we set out at 1 P.M. Another causeway, a turn to the left, and we were again in the Valley of the Silver Stream. It was now a "hobble-dehoy" in the worst and most unmanageable phase, turbid, noisy,

* Known as the Pico chão-chão.

and shallow. Six miles of unusually good road placed us at Mazagão,* the iron foundry of the Capitão Manoel França. From this place to our destination is only six miles, but the bridge was broken down, there is no road along the precipitous left bank, and we were driven to a detour of a useless league and a half westward, north-westward and northward.

Ladders of clay and rock led up the ascents of remarkably steep pitch; the ground on both sides was clad in "dirty forest." A single house, with a little croft, belonging to one Pereira, was the only proof that all was not a desert. We met but one party, probably returning from some family festival, wedding or baptism. The girls rode on before their parents, as they are made to walk in the old-fashioned towns of Italy and the Brazil, Pa and Ma bringing up the rear, and marking down with four eyes every look given and received. One maiden, a pretty specimen with nut-brown skin, blue-black hair and roguish glance, was seated in the manner masculine, a sensible practice now obsolete here, except amongst the Caipiras†, and the slaves. Yet I would recommend it to women who tempt the byeways of Brazil; here side-saddle and skirts are really dangerous to limb and life.

Trotting over the table land, which we found much too short, we dropped by another long and tedious descent into the river valley. To the end of this march the hills are bluff southwards, and fall in long gentle grassy slopes to the north. The path

* This word has spread over the Portuguese colonies between the Brazil and Hindostan, where we write it "Mazagaum," as if it had any connection with "Gaum," a village. The name is Moroccan, and commemorates the Christian victories at the Port of "Mazagan."

† In São Paulo "Caipira" is preferred; in Minas, "Caipóra." The "Caypor" of Mr. Bates, i. 89, is, I presume, a misprint. Both are corruptions of "Caá," a bush, and "-póra," who inhabits. Thus the term literally means "bushman," or savage. "Tapuira-Caápóra" would be a wild (brabo) Tapuya, "abá-caapora," *homme des bois*. Amongst the Aborigines "Caa-pora" (not Caypora) is a spirit or demon that lives in the forest, a wood-imp reputed to be malicious, and fond of robbing children, which he stores in a hollow tree. In old authors we find Curupira: the old Jesuit Simão de Vasconcellos interprets the word "dæmon of thought," spirit of darkness; others, "spirit of the

woods," opposed to Jurupari, or Jurupery, the Devil. Evidently there is a confusion, physical and metaphysical. Sr. J. d'Alencar explains Curupira by Curumim, a pappoose or Indian child, and pira, bad; it was usually represented as a dwarfish imp. Jurupari is from Juru, a mouth, and apara, crooked. In popular use Caipira is applied contemptuously to both sexes, and corresponds with our Essex Calves, Kentish Long-tails, Yorkshire Tikes, and Norfolk Bumpkins. A man will facetiously use it to himself or to his family, but others must not. The civil name for a backwoodsman, a voyageur (Canada), a *Coureur des Deserts*, or *Coureur des bois*, is "Sertanejo," which classical authors write "Sertanista," from Sertão, the backwoods, the Far West, a term which will be explained in its proper place. Southey (*Explorations*, &c., iii. 900) makes "Sertanejo" an inhabitant of the "Sertam," and "Sertanista," a person engaged in exploring the "Sertam."

was a zigzag of the worst kind; again we hit the river, now a flood in hot Achillean youth.

Impiger iracundus inexorabilis acer.

A swirling torrent, not exactly yellow, but dark and flavous, hardly to be swum or forded. From the grassy slopes above, the rush of water was imposing, banked with bluffs 300 feet high, and shaded with gigantic trees, hanging woods and wonderful virgin forests, a scene that would surprise the admirers of poor little Dart, the wonder of Southern England. The bridge was unsound, but it bore us across. I felt no little anxiety. The sun was already streaming his last rays over the mountain tops, three conspicuous knobs in the north, a kind of "Three Sisters," illuminated by the reflection. Night follows sundown like a shot at this height, and in these low latitudes; the slope was desperately long, the mules were jaded, and in places holes twenty feet deep yawned across the path.

At length, after much straining of the eyes, we descended the last pitch of road, and ere day was burnt out we entered, with no small satisfaction, Coche d'Agua. Here we found Mr. L'pool, who had hurried on, determined to be under cover before dark.

And here I venture to offer advice with the view of forming a "comfortable traveller." Let every thought be duly subordinate to self. Let no weak regard for sex or age deter you from taking, or at least from trying to take, the strongest beast, the best room, the superior cut, the last glass of sherry. When riding lead the way, monopolise the path, and bump up against all who approach you—they will probably steer clear for the future. If a companion choose a horse, a saddle, or a bridle, endeavour to abstract it—he had evidently some reason for the choice. In the morning take care of No. 1; muffle your head, wrap up your throat, stuff your boots with cotton. As the sun rises gradually unshell yourself—"good people are scarce"—open your umbrella and suck oranges, not omitting all the little contrivances of refecation which your ingenuity will suggest. Never go to a hotel if there be a private house within a league, and above all things keep the accounts. Finally, if you invite a man to dine, score up his liquor on the wall, staring him "in the face," so shall or may it deter him from the other bottle. And thus your trip will cost you 123 milreis, when your friend is minus 750 milreis a head.

CHAPTER XX.

TO THE GOLD MINE OF MORRO VELHO.

“Cultiva se em Minas precisamente como se cultivam no tempo dos Paulistas e dos Emboabas.”—*Pres. Report of Minas Geraes for 1865, Appendix, p. 25.*

“A VARGEM do Coche d’Agoa”* — the River-reach of the Water-trough—humble name for a humbler spot, is so called from a stone cistern, still visible in the now ruined house of the late Lieut. Domingos Soares, a small “Creoulo”† planter. Dr. Couto (1801), mentions it as a “sitio” and station on the old western road from Ouro Preto to the then Tejuco. Actually it is a scatter of some sixteen huts in a hollow which grows bad sugarcane, good potatoes, and plentiful fuel for the great English mine.

José Clemente Pereira, our host, had been presented by his wife with twelve sons, and their increase was fifty grand plus five grandchildren; the family populates the place. This “creating souls” and breeding citizens for the commonwealth, advances here as elsewhere in Minas, by geometrical rather than arithmetical progression. I shall revert to the subject. We all intended to sleep like humans who had earned their rest; but the night air was raw and nipping, the poor great-grandmother had a bad cough, and Negra, my mastiff-pup, snored grimly, till made thoroughly intoxicated by cachaça, poured upon it with that intention.

And here let me explain what cachaça is before we enter

* Caldeleugh (ii. 269), writes Coxo de Agua, and the Almanak Coxo d’Agua. The reader will have remarked before this that the etymology of the remarkably rich Portuguese language is still unsettled. This is naturally the case with a tongue spoken from the upper waters of

the Amazons to Macao and Japan. The elision of the letter terminating the genitive sign is remarkably arbitrary.

† Creoulo, or Creolo in the Brazil, is applied to negroes and things grown in the country, and to persons either born in the Empire, but not of mixed blood.

civilized houses, where the word and the thing are equally abominable.

“Cacháça,” or “Caxáça,” the “cachass” of strangers, is the “tafia” of French writers, a pretty word wilfully thrown away, like the Spanish “tortilla,” that means “scone.” It is the kornschnapps, the kwass of the Brazil. The commonest kind is distilled from the refuse molasses and drippings of clayed sugar, put into a retort-shaped still,* old as the hills, and rich in verdigris. The peculiar volatile oil or æther is not removed from the surface; the taste is of copper and smoke—not Glenlivet—in equal proportions, and when the “atinga” or fetor has tainted the spirits it cannot be removed.† Otherwise it would be as valuable to Europe as the corn brandy of Canada, and the potato brandy of Hamburg, from which is made the veritable Cognac. There are two kinds; the common, made from the Cayenne‡ cane, and the “Creoulinha” or “Branquinha,” the old Madeiran growth; the latter is preferred, as the “cooler” and less injurious. Brandy, said Dr. Johnson, is the drink of heroes, and here men drink their Cacháça heroically; the effect is “liver,” dropsy, and death. Strangers are not readily accustomed to the odour, but a man who once “takes to it,” may reckon upon delirium tremens and an early grave. Its legitimate use is for bathing after insolation, or for washing away the discomfort of insect bites. Your Brazilian host generally sends a bottle with the tub of hot water.

The “Canninha,” in Spanish “Cana,” is a superior article, made from the cane juice fermented in souring tubs; it is our rum, and when kept for some years, especially underground, the flavour reminds one of Jamaica. Old travellers usually prefer this “Pinga” to the vitriolic gin and the alcoholic Cognacs which have found their way into the country; as the bottle is sold for a penny to twopence, there is no object in adulterating

* Archaically called Alambique.

† A more careful process would probably obviate much of this evil. At present imperfect heating and cooling of the rough machine, cause the irremediable empyrenematic taint. I never could light a spirit lamp with the second distillation, much less with the first.

‡ “On a d’abord cultivé dans le canton la canne de Cayenne, mais quand on a connu celle de Taïtè, on lui a donné la préférence.” (Prince Max. i. 83). Most writers declare the Cayenne (Cayena), to have been

brought from “Otaheite;” about 1832 this “Otaheite Cane” was introduced into Louisiana and Florida, which formerly had the “Ribbon Cane,” the Creoula of the Brazil. The author above mentioned tells us that in his day the commonest kind was called “Agoa ardente de Canna” (opposed to the agoa ardente do reino, *i. e.*, rum, gin, Cognac, &c.); when better distilled, “Agoa ardente de mel,” and the best “Cachaza” or “Cachassa,” both wrongly spelled. These expressions are now quite obsolete.

the contents. Drunk in moderation, especially on raw mornings and wet evenings, it does more good than harm. The people have a prejudice against mixing it,* and prefer the style called "Kentucky drink," or "midshipman's grog;" they are loud in its praise, declaring that it cools the heat, heats the cold, dries the wet, and wets the dry. When did man ever want a pretext for a dram?

The "Restilo" is, as its name shows, a redistillation of either Cachaça or Canninha, and it removes the unpleasant odour of the molasses spirit. This form is little known in São Paulo; in Minas it is the popular drink, and the planter calls it jocosely "Brazilian wine;" he prefers it, and justly, to the vile beverages imported at enormous prices from the "Peninsula." There is yet a third distillation, "Lavado," or the washed. It is said to be so strong and anhydrous that if thrown up into the air it descends in a little spray, and almost evaporates. It is not, however, distilled over burnt lime, and thus it never becomes absolute alcohol.†

The effects of this rum upon the population, and the frequency of the Cachaçada or drunken quarrel, often ending in a shot or a stab, will be found noticed in the following pages.

It was 5.15 A.M. on Saturday, June 19, 1867, the ninth stage from Barbacena, and the sixteenth day after our departure from Rio de Janeiro, when we were summoned to mount and to measure our last march. A thick white mist blurred the moon's outline, here a sign of cold, not of rain. Our escoteiro, however, knew every inch of the road; we followed him with full confidence over a freshly repaired bridge, up and down hills like palm oil, and across sundry short levels, where the River Valley, which has now wound from east to north, widens out. Again I call by courtesy a valley this longitudinal furrow which splits the mountain range into two meridional chains; on its right crowd the westernmost buttresses of the "Serra Grande," or "do Espinhaço," whilst the eastern flank of the chain connecting Itabira Peak with its brother apex Cural d'El-Rei, hems in the left.

* Mr. Walsh (ii. 8), gravely chronicles concerning "Caxas;" "Our host informed me that it was a wholesome and excellent cordial when taken raw, but he warned me against mixing it with water." Despite which sound advice the traveller presently tried it "hot with" and pronounced it to

be a by no means contemptible beverage.

† The Restilo is the best for preserving specimens, but it affects the delicate colours of the coral snakes for instance, and thus erroneous descriptions have become current. If cachaça be used, the spirit must be changed after a few days.

As Lucifer sparkled aloft between the Crescent and the horizon, bright as should be the sun's herald in the Highlands of the Brazil, and the air became sensibly colder, and the pale brassy dawn-light waxed faintly green; when red reflections lined the fragments of cloud land, and the merry "Cardinal"* began to chirp his matins, we again saw on our left the baby brook, the hobbledehoy, the hot young torrent of yesterday, now become the Rio das Velhas, and stamped with the signet of middle age, a respectable fluviatile, progressing steadily three miles an hour, broad-waisted as the Richmond Thames, not ignorant of the canoe, and presently about to call for connection with and settlement by a steamer. Dr. Couto calls it O Vermelho Rio, showing that the banks were then much worked and washed for gold; now it is of muddy yellow hue.

An hour's ride, ending with a steep incline, placed us at the arraial and freguezia of "S^{to} Antonio do Rio das Velhas."† Its birthday is unknown, the date was probably when the Batatal,‡ the Socco, the Engenho de Agua, and the Papamilho Mines gave abundant golden yields. In 1801 it had a hundred houses; in 1820 the population was numbered at 1200; in 1847, Sr. Silva Pinto§ gave it 1086, and the Almanak (186-,) proposes 1300, an estimate based on 115 voters and three electors. At present it has some forty-five tenements, scattered about the river's right bank. We found it a village of the dead-asleep; vainly the mules halted unbidden at the familiar venda, and the Company's private ranch. The little Matriz was silent, dumb, and so was its filial chapel—we had no desire to disturb their echos. The village has shops and mechanics; it breeds and it cultivates "some," but the price of transport smother's exportation. Sunday, when the parish meets to discuss its scandal and to do its worship, galvanizes it into a manner of life, and at times a drunken miner from Morro Velho performs a lively piece, ending with a "dance of all the characters."

The next hour lay over a mud which in the rains becomes the matrix of a small iron mine of mules' shoes. It was lately re-

* A pretty red Tangara (Tanagra episcopus?), locally called Cardeal.

† Alias Santo Antonio do Rio Acima, "up-stream," thus distinguished from "S^{to} Antonio do Rio Abaixo," another village "down-stream."

‡ This name, common in the Provinces

of Minas Geraes and São Paulo, means that the gold nuggets found there were common as sweet potatoes (batatas).

§ This gentleman's work was promised to me at Ouro Preto. Unfortunately the promiser forgot to keep his promise.

paired, and in parts newly laid by M. Gerber, C.E., of Ouro Preto. The "troopers," as usual, prefer the old familiar way, consequently both lines are abominable. The end of the league showed us, on the left bank, a little white-washed church, S^{ta} Rita, and in the stream were two piles, once a bridge built by men who ignored the art and mystery of pile driving. Beyond it lies the Morro da Gloria Mine, belonging to five proprietors; the pyrites, finely crushed by six head of old Brazilian "chápas,"* yields per ton $\frac{5}{8}$ ths of an ounce of 21-carat gold. Here, too, is the "Morro de Santa Rita" Mine, once an "open cut," now fallen in, fast closed, and no longer exploited.

S^{ta} Rita is said to be one league from Morro Velho; if so it is the longest league I ever did ride. Opposite it, the Estalagem, a big ranch, leads to *the* Santa Rita Mine, proprietrix D. Florisbella da Horta, a widow who has worked her property with the Brazilian energy of an earlier day. This "Lavra," or washing, which is still at times washed, is partially pyritic, and yields also brown auriferous oxide of iron with leaves of quartz; it is quarried with an open face like a stone pit, then stamped and finally straked.† The loss of negroes was great; Dr. Walker, third superintendent of Morro Velho, informs us that in an exceptionally short time, twenty-four out of forty seasoned men died of dysentery and inflammation of the chest.

Here the river-bed is cumbered with grave-like mounds and masses of gravel, coarse and fine; it is mostly grown with thin vegetation, sown by the hand of Time since 1825, when all these diggings were in decay. The hard ferruginous material locally called Marumbé,‡ darkened the soil. Presently we turned sharp to the left from the Sabará road, and crossed the Rio das Velhas by the Santa Rita bridge. The footway is 270 feet long, with nine spans supported by trusses or trestles, the girders being stiffened and prevented from warping by diagonal chains. Built in 1853, it has frequently been repaired by the English Company; in 1859 Mr. Gordon gave it the last touch, since then two supporting posts have given way, making an ugly sag. A bolster or felling-piece of wood placed over the cap-piece would remedy the

* "Stamps," of which more hereafter.

† This use of the word may not be correct; but it is very convenient, and amply deserves to be made a passed and accepted verb.

‡ Dr. Couto declares these Marumbés, or Marumbís, which he writes "Marombés," to be copper ore of the ash-coloured (cinzenta) species. But he certainly had copper on the brain.

defect; but the municipality would take a year of Sundays to think and talk over the matter.

Beyond the bridge, northern energy and capital were seen to assert themselves. Here, three miles from Morro Velho, begins the estate of "Fernam Paes," bought in 1862 by the Great Company for 11,583*l*. The mines, mostly pyritic, are those of Gaia, Guabiroba (valuable ground), Samambaia, Serviço Novo, Mato Virgem, and minor deposits. The new proprietors have cleared a twenty-foot road, have laid a tramway for bringing the ore to the stamping mills, and have cut a leat* through very hard ground; the stamp site has been excavated, the framework is being put up, so as to begin work at once, and the old manor-house on the right of the thoroughfare had been repaired for the English miners; their sturdy northern voices greeted our guide from afar.

We ran for a short distance down the River Valley, which bagged to the left, and showed signs here of a "tip-over," there of regular flooding, as far as the hill foot. Part of this ground belongs to the Company, part does not,—which, to speak mildly, must be a nuisance. We then toiled up a red clay ridge, crept down an incline of similar formation, and up another bad chine, justly called "Monte Vidéo."† This Bella Vista shows the first glimpse of our destination, and joys our hearts. High in front towers the peak-capped wall of Curral d'El-Rei, bearing its timber cross. On a nearer and a lower horizon rises Morro Velho, "the old mount," also cross-crowned, and supporting on its brown shoulders "Timbuctoo" and "Boa Vista," the white-washed and red-tiled negro quarters.‡ At our feet is the pit filled by the little town Congonhas, whose site is an irregular mixture of bulge and hollow, sprinkled with church and villa, with garden and orchard, and beautified with its threading of silver stream. On the ridge to the right is the Bella Fama farm, where the Company keeps its "great troop" of mules, used to bring in stores and provisions. On the left are other ridges and other peaks, which we shall presently see to better advantage.

Nothing can be more suave than this view on a fine clear

* An artificial water-course, here called "Rego."

† Not Monte Vidéo, Anglièè: the vulgar derivation is Montem Vidéo—"I see a

mount."

‡ Here called by the African name, "Senzallas."

morning; but those who first descend it in a Monte Vidéo fog, will shudder at the portal of a Brazilian Staffordshire,—a Black Country. The angle of the road is that of a roof, and set in the red clay is a dark slaty patch of finely pulverized or treachy-muddy argile, which looks from afar like a vast pall. The colouring matter is a trifling portion of cubical and unauriferous iron pyrites, the clay is useful for plumbago-coloured pigments, and in Europe the mineral is made to yield sulphuric acid, and to serve many technological purposes.

Red ridge and black ridge might both be avoided by running a road for 1.25 miles down the river-bed, below Santa Rita bridge, and then by hugging the Ribeirão do Morro Velho.* The latter is the main drain, the natural zigzag, and the best approach to the great mine, which certainly deserves a carriage road instead of the present mule path.

A deep hollow lane, with the rocky remnants of an antiquated ramp, a few huts, the little Bomfim chapel, and the large house of a charcoal contractor, lead into the town. We rumbled over the Ribeirão bridge, and thence we clattered over the slippery kidney stones, with their black capping of iron, that pave the sleepy little old settlement. It rarely opens its eyes before 8 A.M., when a few hundred yards beyond it, hundreds of men are working night and day: those citizens who were awake were probably but half awake, they looked very cross, and not a slouched hat was fingered.

“Na Sa do Pilar de Congonhas de Sabará”—here names are long, apparently in direct inverse ratio of the importance of the place or person named—though very drowsy, is tolerably neat, and wears a kind of well-to-do-in-the-world look. The main square has some two-storied and ornamented houses, and the village dignitaries have taken the trouble to prop up that necessary of Brazilian town-life, † the theatre, decrepit though only fifteen years old. The Matriz, repaired by the late Fr. Francisco de Coriolano, shows a three-windowed façade, and a cross-crested pediment; the belfries have Swiss roofs, pig-tailed at the corners, and turned up after the mode of Chinese Macao; pos-

* Formerly the Ribeirão de Congonhas, which flowing from west to east has been diverted to work and drain the English mine.

† I believe that the Brazil, with about a

third of the population of England, has as many theatres—166. It will be time to abuse them when we have improved our own.

sibly it is an unconscious derivation from the image dearly beloved by the heathenry of Poméco and Tlascalla. At the railing door there is a quaint screen, quaintly painted with the Passion-events, whilst the ambulatory has fourteen station-crosses nailed to the walls.

Commerce flourishes in twenty shops, including a laboratório and sundry pharmacies. The Inner Brazil, like the Western United States, and very unlike the Bananas* of the coast, still requires the dinner pill of our grandfathers and Dr. Kitchener's "peristaltic persuaders." May not this partly account for the spirit so *tenax propositi*, with which both nations have waged wars for years, when we wax weary of fighting and yearn for "home" after a few months' campaign? The apothecary in these parts is never a poor apothecary. 200*l.* worth of bad drugs brings him 2000*l.*, and keeps him for life; strange to say, men who can be dosed gratis by the Company, prefer the "botica" and—quingenties.

Congonhas has been cured of the "decadence et abandon" in which St. Hilaire found it forty-seven years ago. Built by mining, it fell with mining, and by mining it has been "resurrected." In 1830 it lodged 1390 souls; in 1840 about 2000, with three churches, one an unfinished ruin; in 1847 (Sr. Pinto) 913, of course Morro Velho not included; in 1864, 6 electors, 211 voters, and 4000, allowing 1000 miners. Since that time the number has certainly not fallen off.

From the square we turned to the left, compelled by an ugly stony climb, impudently rising straight in front, and cutting over the ridge that separates the basin of Congonhas and Morro Velho. By the partially paved road there was a neat store and the Hotel Congonhense, where M. Gehreke, an old English-speaking German employé of the Company, receives the destitute of introductory letters; here also an Italian portrait-painter lives upon his art. High above us to the right is the Rosario Church, filled though it is no fête. The dark towerless front of the mouldering fane frowns in stone like a bit of bastion; an unfinished crown of Portugal and a bald place for the "Quinas" beneath, tell their own tale. The nave and the high altar glare with whitewash, the ornamentation is pauper and gaudy—negro taste.

* The Cockneys of Rio de Janeiro are so called by the hardy Paulistas. The extensive use of aloes in the interior is noticed by the "System."

Lower to the right is the store of Messrs. Alexander and Sons, who brew their own "yel," called "Inkermann," which rapadura sugar makes a trifle more capitous than the pawkiest of Scotch barley braes, and which has rolled over many a stout fellow neatly as could a Russian gun. Beer, which ancient Egypt, although she had no pale ale, sensibly preferred to the vine, should be heavily backed in Minas against spirits, especially Cachaça. Mr. Henry D. Cocking, of the Smiths' Department, brews at home; he must, however, import his hops. To judge by the success of the Germans in western São Paulo, here also the fine tonic would flourish. Opposite Messrs. Alexander's is the large ranch of Mello and Co., where the black miners make their purchases; further on lies the old hospital, with its garden now occupied by the mining captain Andrew, and by Sr. Antonio Marcos da Rocha, once a servant of the Gongo Soco establishment, now "Ranger of Woods and Forests" at Morro Velho. The road is protected by tree-trunks laid obliquely across it, and faced up with clay to serve as watercourses; this is a common contrivance in the Highlands of the Brazil, and on some lines, especially in São Paulo, horses must step over a bole with every second pace.

Here the near view becomes passing pretty. The descent runs through an avenue of Coqueiro palms, whose drupes, large as a score of grape bunches, hang about their necks. On either side is a meadow of "Angola grass" (*Capim d'Angola*, *Panicum guineense*), each rich green leaf eight inches long, by one and a half broad; it is planted by joint-cuttings of the cane-like culm, and in the season it supplies per week three tons of sweet and succulent fodder. Unhappily this fair site is the very centre of diphtheria. Above the meadow, and crowning a red yellow hill, is the Rev. Mr. Armstrong's parsonage, white and neat as his neck-tie. The wonderfully thin lancet windows, and a cross ultra-Runic, distinguish the chapel amongst the scattered villas and rows of houses.

To the right, on the near bank of the Ribeirão, heaps and banks of grey ore and crushed stone denote the "Praia Works."* A little tramway, 800 yards long, piercing the hillocks and crossing a pair of bridges, with one heavy filling and cuttings to

* I shall return to these "Praia Works" in Chapter 26.

the extent of 788 cubic fathoms, connects them with headquarters, and conveys from the spaling floors "poor stuff"* to be worked should an accident close the upper mines. Here also "launders"† or flumes with great fleet or inclination, bring down slimes and refuse-tailings. The machinery which re-treats them consists of two wheels, and stamps housed under a long tiled shed.

Ascending a dwarf hill—our last, let us be thankful!—we pass a neat Anglo-Indian bungalow, occupied by Mr. James Smyth, superintendent of the Negro department. On the other side of the Ribeirão gully are the brown tents denoting the "Mingú diggings," pyritiferous like the main lode. Further on are the large new Hospital and the medical quarters, where lodge Doctors M'Intyre and Weir.

"Tranquillity House" has the prettiest of prospects; but lovelier, ah! far lovelier, are the charms of "Galashiels," says Dr. Weir, who with filial reverence hangs to his wall a print of the uncouth Scotch village. Still further on is the Catholic Chapel, literally all crosses; outlying crosses, inlying crosses, crosses in the air,—even the windows are crosses. To the primitive Christian what a scandal this would have been! North of the valley is the "Morro Velho;" a dark red scaur in its southern slope shows where the Brazilian owners hit their first gold, and where sundry huts were buried by a land-slip. The tall black cross was put up by Mr. Gordon, to ease the burden of his people; formerly, on days ordered by the priest, they pilgrimaged over three rough miles, to the apex of the Cural d'El-Rei. The "Old Mount" gives a beautiful panorama, but in the "dirty bush" the King of the Carrapátos holds his court, and he will hold it till ejected by Bahama grass, or some similar immigrant vegetation.

Leaving to the left, on an eminence, the big white store of the Company, presided over by Messrs. George Morgan and Matthew, we find the "Casa Grande," which must not be confounded with the "Casas Grandes" of the Gila Valley. Here it is the Superintendent's quarters, red tiled, painted with official yellow, vine-grown, and fronted by a verandah built to receive

* "Mina Pobre."

† Native miners call the launders "bicáme," from "bica," a spout.

His Imperial Majesty. To the west, and facing at right angles, is the Sobrado, which acts "Guesten House," and where, although intending that our visit should last a week, we shall presently pass, on and off, a pleasant month of busy idleness, the "best of all earthly blessings." This hospitable adjunct is found in all the old-fashioned establishments of the Brazil, and in the country towns, even now, a man will not take a tenement which wants the detached quarters where friends and strangers can be entertained.

The scene strikes my unfamiliar eye as a mixture of Brazilian Petropolis and Neilgherry Ootacamund; there is something English in the neat cottages, fronted by railed flower-beds, and the dark slatery stream; with a savour of Switzerland in the high clear air, and the meshes of yellow pathways on both sides of the Ribeirão Gorge. But can we be within earshot of the Great Mine? Where are the familiar features, the poisonous smoke, the vegetation "fuliginously green?" All around us are dottings of varied verdure, here a row of gigantic aloes, like the Socotrine, whose gold-green bands gain for them in the Brazil the title of "Independence Shrub." There we see a cedar, sole survivor of its ancient and noble race, proving that this valley was covered at one time, like the rest of the country, with virgin forest. The splendid snow-white trumpets of the *Datura*, popularly called Fig-tree of Hell,* depend from masses of verdure twelve feet high; the fatal use of the seed, so common in India, where a caste of professional poisoners is called "Daturiyah," here belongs to negroes. The Melastomaceæ, of various species, vary in size from a mere bush to a tall tree: the Flôr de Quaresma, or Lenten flower (*Lasiandra mutabilis*)† is beautiful in bloom of white, pink, and dark lilac, and the mauve-coloured bracts of the Brazilian Bougainvillea, here of unusual stature, are set off by the wild Fuchsia, brilliant with bloom of the richest scarlet, whilst the humbler growths of homely England act foil to the gorgeousness and the splendour of the Tropics.

* *Figueira do Inferno.* This and "trombelleira" (trumpet-tree), are the general names for all varieties of the *Datura Estramonio*, or *Stramonium*. The common arbust is the *Brugmansia candida*.

It has probably been introduced from Hindostan into Minas.

† The bark of this tree is used as a black dye.

We have been riding four hours, we are hungry as hunters, and so, with another glance of admiration at externals, we bid *au revoir* to our good "master of the horse" and all his mules, we enter the hospitable house, and after the warmest of receptions, we suggest breakfast, which does not keep us waiting.

CHAPTER XXI.

NOTES ON GOLD-MINING IN MINAS GERAES.

“Quand la population sera plus considérable, et que les Brésiliens sauront exploiter leurs mines d’une manière régulière, on en tirera des avantages qu’on ne procurerait pas aujourd’hui sans faire d’immenses sacrifices.”—*Eschwege, Pluto. Bras.* 78.

SECTION I.

GOLD.

BRAZILIAN travellers of the pre-Californian epoch, St. Hilaire* and Walsh for instance, firmly believing that Dives must ever go to the Devil, were fond of exalting, à la Fénelon, those silly pseudo-virtues, the golden mean, Frugality, Simplicity, Content, La Pauvreté, sa mission dans l’église, and so forth. They moralised, like St. Paul and Pliny, *ad libitum* upon the evils which gold does to mankind, and especially upon the evils which gold-digging has done to Minas and other places, by scratching up a vast extent of country, and by diverting industry from more profitable and enduring pursuits. They adopted the sentimental view of the metal. Mammon still looked upon the trodden gold of Heaven’s pavement. They remembered their “gold alone does passion move;” their “auri sacra fames,” the “aurum irrepertum,” “et sic melius situm,” the “auri sanies,” and “bane for the human race;”

* “Gold mines discovered by audacious and enterprising men, swarms of adventurers settling upon riches announced with all the exaggeration of hope and desire; a society formed in the midst of every crime, reduced into a semblance of order by military law, and softened by the burning sun and the effeminate indolence of the climate; some moments of splendour and prodigality; a melancholy decadence and ruins—such is briefly the history of the Province of Goyaz; such is the course of events in almost all gold-bearing countries.” (St. Hil. III. i. 308—9).

Sentimentalism is *per se* irrefutable; it

is to common sense what metaphysics are to physics. But the amiable author forgot that Goyaz, a type of the inner Brazil, would have remained a luxuriant waste tenanted by cannibal “Indians” had not its mines attracted colonists. He ignored the fact that the labours of these men have laid the foundations for a vast superstructure of progress, by taming the ferocity of Nature, and by liberating posterity from the thralldom of mere animal wants. Thus in our day desert California has become under the gold-digger’s hands the great wine-growing country of the West.

whilst they forgot that the precious ore is a mere matter of traffic like timber, corn, and wine. They probably expected men to cultivate the miserable potato when their grounds grew guineas in diamonds and gold: they perhaps wished the peasant to throw back, on philanthropic principles, his gold and diamonds into the stream that yielded them. They instanced the decay of mining cities and villages, as though ruin were the result of disturbing the bowels of the earth—"a dispensation of Providence," as they call it who assume the pleasures and duties of directing the course of "Providence." Even the civilized Castelnau laments the "*hochets de la vanité humaine*," which prizes the diamond, ignoring the fact that it is a mere coin of higher value, an unburnable bank-note.

Far wiser in their generation were the Brazilian writers, who considered the miner, like the tiller of the ground, one of the State's twin-pillars. They justly attributed the decay of the mushroom mineral settlements to ignorance of physical science, and to the workings of a destructive political system. They looked forward to the days when "deep mining" will leave more land for agriculture, but they also knew that land is here a drug, and that mining soils are, as a rule, not worth cultivating. And they dismissed objections against mines of diamonds and gold as readily as if they had been levelled against mines of coal, copper, or lead.

These chapters will show, I trust, that the exploitation of gold and diamonds has but just commenced in Minas Geraes, and indeed in all the Brazil. Martim Affonso de Souza, after touching at Pernambuco, Bahia, and Rio de Janeiro, cast anchor on August 12, 1531, off the island of Cananéa, now called *Ilha do Abrigo*—Isle of Shelter. There he found a certain Francisco de Chaves, known as the "*Bacharel*," who is said to have lived thirty years upon the seaboard, and who truly informed him that gold abounded in the near interior. The great voyager sent on September 1 of the same year a party of eighty men, commanded by Pedro Lobo. This, the first *Bandeira*,* was destroyed

* "*Bandeira*" is primarily a flag, secondarily a troop under a flag; the word gained a wide significance in São Paulo, which, between 1550 and 1750, sent forth those redoubtable *Comandos* which explored and conquered the interior. Southey (i. 43) has left a sadly garbled account of the first

Bandeira. "Martim Affonso made an unsuccessful expedition southward into the interior, in search of mines, from which he returned with the loss of eighty Europeans." The great captain, who seems never to have failed, sailed from Cananéa on Sept. 26, 1531, explored the Rio da

by the barbarous Carijós and Tupys; a second set out to punish the savages, and thus the extraction speedily followed the discovery of the precious ore. Yet it may be truly said, that during these three centuries and a quarter, nothing has been done compared with what remains to be done. In California, we are told by Mr. J. W. Taylor, that "notwithstanding the skilful application of hydraulic power and other improved machinery, the production of gold by placer-mining* has diminished from sixty millions of dollars in 1853 to twenty millions in 1866." In most parts of Australia also, the surface-washings are exhausted, and the pick and pan men must make way for companies with machinery and large means. The Brazil has still many an undiscovered "placer," but her great wealth lies deeply buried under ground.

The gold-diggings of Minas Geraes, and especially those of Morro Velho, correct a popular scientific error. I remember how, a few years ago, a distinguished President of the Geological Societies used to show the gold formation with the wrist upturned and the fingers downwards, other metals being supposed to be deposited in the inverse way, little above and much below.† Dr. Couto's generalization is also, I believe, based on insufficient data, when he supports his favourite Lehmann's belief,‡ that the sun is the principal agent in the alchemy of gold, by asserting that mines here lie on the eastern slopes of mountains, rarely on other "rhumbs." On the other hand, here, as in Cornwall, the tendency to an east to west direction of metalliferous veins has been remarked. It is popularly explained by the "generally westerly direction of voltaic currents, connected with the general meridional direction of the magnetic needle." In the Brazil also the auriferous mountain chains are mostly meridional. Pliny (xxxvii. 15) is right in asserting that the diamond, if his hexahedral "adamas" be not corundum, but a true diamond, is mostly found in close proximity with gold. And we may remark

Plata, and did not return northwards till January, 1532. In the Discours préliminaire prefixed by M. J. B. B. Eyriès to "Jean Mawe," we read (p. xvi.) "Ce fut en 1577 que l'on trouva les premières mines de ce métal." The popular error is that gold was first found in Jaraguá, a mountain within sight of S. Paulo the city.

* "Gold ledges are not more liable than ordinary metalliferous veins to become impoverished in depth." (Mr. J. A. Phillips,

"The Mining and Metallurgy of Gold and Silver,"—I quote from a review). The same error, it appears, prevailed touching the stanniferous deposits of Cornwall.

† Art des Mines (i. 11). The theory in the Brazil was that the soft yellow clay was gradually dried, ripened, and "aurified."

‡ The faults and dislocations which intersect and upheave metalliferous veins, and which consequently are posterior in date, often intersect them at right angles.

that, in this part of the Brazil at least, gold is invariably accompanied by some form of iron. The same may be said of diamonds.

The gold deposits of Minas Geraes may be divided into three formations, all the produce of primitive and metamorphic rocks.* These are :—

1. Quartz or Cascalho gold; †
2. Jacutinga; and
3. Pyritic formations.

All the specimens of quartz-gold shown to me at once suggested California and the Guinea Coast, and the works which I saw on the São Francisco River were of the rudest description. Brazilians divide it into three kinds. The first is Ouro do Rio or da Córrego, "stream ore": it is either loose or embedded in pebbles, galettes, and kidneys of quartz, sandstone, granite, gneiss, "Itacolumite," talcose-schist, or the conglomerate called Canga. ‡ This gold, being deposited at different epochs by "rain

* The auriferous quartz veins on the Pacific coast have proved that the deposits of ore are not confined to the Silurian epoch, as contended by Sir Roderick Murchison, but are also extended into the Jurassic period. I found no fossils which could mark the date of the Minas rocks.

† "Cascaão," or "Pedra de Cascaão," when large "Cascaão," is a coarse gravel composed of many varieties of quartz, and supposed to be the matrix of gold and diamonds. I may suggest that it is the Spanish Segullo, the Segutilum of Pliny: the dictionaries, however, usually derive it from "quassus" and "calculus," making it synonymous with "pedregulho," or gravel. It is always rounded and water-rolled, opposed to the angular gurgulho—of which I shall presently speak. Some writers use the word, perhaps correctly, with great latitude. "O Cascaão he compacto de fragmentos angulosos de quartzo e mineral de ferro argiloso, a que os mineiros chamão *pedra de Canga*" (José Bonifacio, Viagem Mineralógica, p. 9). So Southey (iii. 53) explains "Cascaão" to be "hard gravelly soil in which the ore was embedded," and in another place (ii. 669) a "compost of earthy matter and gravel." Both definitions are equally incorrect. The "Cascaão" may rest either upon the stone core which underlies the Neptunian formation, or upon the common

clays of the country, or upon the loose sand called "Desmonte."¹ There are minor divisions of "Cascaão" as "Cascaão de Taboleiro," found on river banks and high lands: this is either rounded or angular. The "Cascaão do veio do rio" comes from the stream bed, and is always water-rolled. Again the "Cascaão corrido" is that which is much worked by water, opposed to the "Cascaão Virgem" when it is pudding-stone shape.

‡ The word must not be confounded with the Portuguese "Canga," a yoke. It is evidently a mutilation of "Acanga," in Tupy a head; thus we find the names of places "Cáia-Canga," monkey's head, and "Tapanhu 'acanga," nigger's head, from "Tapanhúna" (vulgar corruption), a negro or negress. John Mawe (ii. 24) erroneously writes this "Tapinha-Canga," and says "Canga est le nom de quartz ferrugineux." We have seen José Bonifacio give it to angular quartz fragments in argillaceous iron. It is a general term for any stone with an iron capping, and therefore called "Pedra de Capote" (cloaked stone) in São Paulo. Dr. Couto declares that it has often been applied to what is really ochraceous copper.

We find in Pliny (xxxiii. 21) an allusion to these upper formations, the "gold that is thus found in the surface crust is known to the Romans as 'talntium.'"

¹ For the latter the reader may see Vol. 2, Chapter 8.

and rivers," extended from the surface to twelve and even twenty feet below it. As a rule, however, it was soon exhausted. The second formation was known as "Ouro de Gupiára," gold of the roof, a term very variously explained.* Here the ore was mixed with the superficial clay, generally red, rarely black; it was easily extracted and soon. The third kind of gold was termed "Ouro de Pedreiro," gold in stone, and was supposed to be supplied by little veins of quartz ramifying through rock. This, therefore, was the only true mine; all the others were mere washings.

In the Jacutinga, as in the quartz, the gold is visible and often free. But the precious ore is so minutely and mechanically disseminated in the pyritic formations, that it seems to be another metal. This is the nature of the Morro Velho mine, and this for ages to come will be the auriferous stone quarried in the Brazil. My account of it will be somewhat tedious. Deep gold-digging in arsenical and other pyrites is, however, so interesting, and the difficulty of separating the precious ore is so great, that every mite of information has its value. The description of the minerals will be mainly taken from the "Annual Assay Report for 1861," an able article by M. Ferdinand Dietzsch, the principal Reduction Officer of the Morro Velho Company.

The auriferous ore delivered by this mine is composed of magnetic iron and arsenical pyrites, in a containing rock of quartz. The specific gravity of the lode ranges between 3·8 and 4·0. The composing minerals may be quoted in the following succession with respect to their metallic properties and relative value. It must be borne in mind that the formations pass into one another almost imperceptibly.

* I believe this word to be a corruption of the Tupy "Copiára, explained by the Dict. as "apendre, varanda, a shed or awning (verandah):" the people on the São Francisco River still use it for a tiled roof supported by posts and without walls. José Bonifacio (Viagem 8) writes Guapiara (in which he is followed by Castelnan) and translates it "cascalho superficial," which follows conformably the irregularities of the ground. St. Hilaire (I. i. 247) has rightly asserted, "on designe ce cascalho par le mot de gupiara, à cause de la ressemblance qu'offrent la forme et la position de sa couche avec les véritables *gupiaras*, petits toits triangulaires qui s'avancent au-dessus du pignon des maisons,"—he had

better have said attached to the wall of the dwelling-house. In Gardner we find "copiara" corrupted to "copial," a verandah; but that good naturalist and observant traveller gave little attention to languages. Burmeister prefers "Grupiara," a common corruption in many parts of the country. Mr. Harry Emanuel (p. 56) explains "Grupiara" as "an alluvial deposit whose surface shows it to be the unused bed of a stream or river," whereas it alludes to the eaves-like side of a hill. I observe that that excellent scholar, Sr. J. de Alencar (in Iracema, p. 100, and other works) writes "Copiar," and Moraes (Diccionario da Lingua Portuguesa), "Gopiara."

1. Arsenical pyrites or mispickel* does not form a large proportion of the mineral, but it is the principal gold-bearer. Some specimens have yielded when assayed from twenty to forty oitavas† per ton. More generally it is mixed with the magnetic pyritiferous matter, when it gives from sixteen to twenty oitavas of gold in assay, and from five to seventeen in reduction. It is the usual silvery-white or steel-coloured mineral, shining with metallic lustre, finely diffused in specks and dots, with a specific gravity when pure of 6·20. The Brazilian miner calls it “antimonio,” a word explained by Dr. Couto to mean copper-pyrites, with iron and sulphur, cubical or hexahedral, well crystallized and coloured like pale gold. The country people declare “that there is much fire in it.” It is evidently subject, when joined with other bodies, to combustion, as shown by the old experiment of making artificial volcanoes by burying in the earth a paste composed of iron-filings and sulphur, kneaded together with water.

2. Common iron (Martial) pyrites (Fe Su²), Marcasite or Mundie,‡ is more abundant than No. 1, but it is far inferior in auriferous yield. Almost pure specimens, with a slight admixture of quartz, give eleven oitavas per ton, the yellow stone of the “West Quebra Panella Mine” gives only six, and when the grains of the larger crystals are embedded in quartz, the per-centage is even less. A superabundance of iron pyrites is almost as antagonistic to gold as a preponderance of the quartz leaven.

* According to Berzelius (Fe S² + Fe As²), or (Fe S² + Fe As). The proportions are variously stated, *c.g.*

Iron	36·04	36·00
Arsenic	42·88	42·90
Sulphur	21·08	21·70
	100·00	100·00

† The old Portuguese gold weights, still preserved, are,—

2½ grains	= 1 vintem.	
5 vintens	= 1 tostão or tustão.	
32 vintens	= 1 oitava (= 1 ¹ / ₁₆ drachm avoirdupois).	
8 oitavas	= 1 onça or ounce.	
8 ounces	= 1 marco.	
2 marcos	= 1 lb.	

The popular gold weight is the oitava = the eighth part of 8·6742 of our ounce Troy, and 104 oitavas = 1 lb. Troy.

I cannot understand why the English Mining Companies in the Brazil persist in sending in large accounts calculated by oitavas instead of ounces and pounds. What can be more ridiculous than such figures as 8 oitavas (= 1 oz.), 16 oitavas, and so forth?

The oitava of course varies with the quality of gold and the rate of exchange. That of Morro Velho, averaging 19 carats, is now (July, 1867) = 3 \$ 454, and the ounce is 27 \$ 632.

‡ Cornishmen have stated that “mundie rides a good horse in the Brazil as well as in Cornwall.” This is true of many minerals, but not, I believe, of gold.

A working miner compared the latter to the soil, the former to its manure. It is liable also to spontaneous combustion when decomposed by contact with moisture. The mineral has the normal metallic lustre and brassy yellow colour, it is found in minute dots of well diffused metal, in cubes and in crystallized masses, each face half an inch and more in breadth. Although it readily tarnishes, the ignorant often mistake it for gold, and it is scattered in large deposits about the valley of the São Francisco River, and in the Provinces of Minas and São Paulo. My distinguished friends, the Commendador José Vergueiro of Ybicaba, and the Deputy Antonio de Souza Prado D. C. L. of São Paulo, showed me specimens of it. The former found them upon his estate near Rio Claro, the proposed terminus of the Santos and Jundiahy Railway, and the latter brought them from the Cavern of Paranapanema, about eighty direct miles west-south-west of São Paulo the city.

3. Magnetic iron pyrites* or proto-sulphuret of iron, forms the largest yield of pyritic matter, but in assay it shows small gold contents, rarely exceeding 1.50 to 2 oitavas per ton. It occurs in the usual hexagonal crystals, foliated, sometimes massive and of fine brassy lustre.

4. The quartz matrix is mostly white or greyish, sometimes smoky, blue-black, and black. Pure and without pyrites, it was formerly supposed never to contain gold; but of late six pieces, some say two or three pieces divided into six, have been found with the precious ore embedded in them. Quartz is generally mixed with pyrites of the highest auriferous qualities, and when it forms the staple, as in the West Bahia and the Champion grounds, the whole body yields a fair average. It was soon remarked that the ore often appears poor in pyrites, but that the pyritiferous matter produces as much as 3.66 oitavas per ton. In places the quartz is invaded by "capel," hard, white, and poor quartzose matter, greatly distorting the contiguous containing rock, and presenting in cavities magnetic iron pyrites, spathose iron, and crystallized copper pyrites.

* The formula is $(\text{Fe Su}^2 + 6 \text{ Fe Su})$ or $(\text{Fe}^2 \text{ Su}^3 + 5 \text{ Fe Su})$: the proportions vary, *c.g.*

Sulphur	36.5	40.4
Iron	63.5	59.6
	100.00	100.00

5. Clay slate, sometimes chloritic (micaceous), mostly talcose (magnesia and silicic acid), called by the English miner "killas." It is amorphous or laminated, generally of dull leaden colour, and exceedingly hard; it traverses the containing rock in places and protrudes into the lode, "teeth" or small branches, "horses" or large masses, and "bars" or dividing walls. Much of it has no auriferous pyrites, and even the highly charged parts rarely afford more than two to three oitavas of gold in assay, or one half to three-quarters of an oitava at the works. The yield is pronounced bad when the killas and quartz exceed the pyrites, middling when they are nearly equal, and good when the pyrites is in excess.* This clay slate is separated as much as is possible from the ore before the latter is forwarded to the stamps, and thus the whole body of mineral is brought up to a higher standard than the bulk received from the mine. As the subjoined figures will show,† the large quantities of valueless stuff cause great delay in the "spalling floors;" and "killas" stamped together with rich stone, occasions a heavy loss in fine free gold.

The gold daily treated in the Reduction works is derived from an intimate mixture of these minerals. The rarer formations are—

Calcareous spar, commonly called "pearl spar." This system of carbonate of lime is found in modified rhombohedra, hard but cleavable, usually white and crystalline, but sometimes of a delicate pink, with the appearance of marble. I saw a specimen of it adhering to the lode in its transition to killas.

* Sometimes, however, the richest ore does not contain more than fifty per cent. of pyrites.

† About 300 tons of stuff, more in the wet season, less in the dry weather, pay the daily expenses of the mine: 400 tons give a fair profit.

During the six months, March to August, 1866, we have the following computation:—

The mineral raised from the mine, a total of 53,698 tons.

During the previous six months 46,629 "

During the six months ending August, 1865 40,014 "

The killas rejected at head-quarters, }
but re-treated at the Praia Works } 22,333 tons, or 40 per cent. on quantity raised.
amounted to

During the previous six months . . 17,108 " 36.6 "

During the six months ending August, }
1865 12,117 " 30.2 "

The average yield of gold per ton raised was 5.974 oitavas.

During the previous six months 6.328 "

During the six months ending August, 1865 4.885 "

The average yield of gold per ton stamped was 11.048 "

During the previous six months 9.988 "

During the six months ending August, 1865 6.458 "

Spathic ironstone, or carbonate of iron. It appears in obtuse rhombohedra, with faces often curvilinear. Some pieces, of a dirty yellow colour, stand erect, and resemble fish scales.

Chlorite is found in large lumps of a copperas-green colour; it sometimes stains with a pretty, light glaucous tinge the adjacent rock-crystal. In Morro Velho it contains iron pyrites, but no gold; this, however, is not the case throughout the Province of Minas.

Arragonite, in white vesicular crystals. Curious specimens are shown with magnetic iron pyrites adhering to the surface.

Traces of copper, crystallized and amorphous, have been found in the lode and the containing rock, but they have not been examined.

Silver in Minas, as elsewhere, is the general alloy of gold.* The mine which the Jesuits anciently worked near Sorocaba was, some say, this "electrum;" others believe it to have been galena highly argentiferous. The ore of Morro Velho contains silver in chemical combination with other substances, and it is not extracted on the spot. A report once prevailed that silver attained the proportion of 16·50 per cent. of the lode. The bar, or ingot, contains 19½ to 20 per cent. of silver.

SECTION II.

THE BRAZILIAN MINING SYSTEM.

Portugal, the western terminus of Rome's conquests, remains to the present day the most Roman of Latin countries. Her language approaches nearest to the speech of the ancient mistress of the world. Her people still preserve the sturdiness and perseverance, often degenerating into dogged obstinacy; the turbulent love of liberty; the materialism and unartistic spirit; the conservatism and love of routine; the superstition and the lust of "territorial aggrandisement," which distinguished the former conquerors of the world. Even in the present day, the traveller in Portugal sees with astonishment the domestic life of Rome, her poetry and literature, her arts and sciences; and the archaic form of civilization has extended even to the Brazil; here,

* "In all gold ore there is some silver, in varying proportions: a tenth part in some instances, an eighth in others."

Pliny somewhat overstates the universality, but he errs only in degree.

although so far removed from its ethnic centre and mixed with a variety of jarring elements, it is easily recognized.

The admirable old naturalist, Pliny, telling us how "gold is found," describes three different ways. The first is by washing the sand of running waters for stream ore; the second is by sinking shafts or seeking it among the *débris* of mountains; and the third method of obtaining gold ("which surpasses the labours of the giants even") is by the aid of galleries driven to a long distance. The following sketch of gold-mining in the Brazil will show how little the Roman system has been changed since A.D. 50.

The first exploitation was by simply panning the auriferous sand taken from the stream-beds, and this we shall see practised to the present day. The next method was the "lavra," or superficial washing. The humus was stripped off with the hoe, and the red-gold clay, or the auriferous "cascalho" (gravel and sand) was cut into squares and lines by shallow trenches. The washers always chose an inclined plane, and a head stream was conducted to the cuttings by split bamboos or hollow trees. This simple "hydraulicking" carried down the free channel gold—the canalicium, or canaliense of Pliny—which was arrested by grass sods or blankets; these were afterwards washed in a "coche," or trough; the dust was then panned in a gamella, or carumbé,* and this ended the simple process. A slight improvement in these "stream works" was made by the "canôa," an oblong of bricks, tiles, or rough planking, which facilitated the washing of the "pay-dirt." In the Far West this industry still prevails; it disappears with the exhaustion of those superficial deposits of gold which more or less have existed in every known country of early formation. The effect of such washing was to leave the land a "caput mortuum of stubborn sterility" which can only be cured by manuring,† an operation beyond the means of the actual Brazil. Other wild "washing"

* The "Gamella" used in gold-washing is larger than the "batêa" (explained in Chap. 12), flat, round, and lacking the hollow point in the centre. The "Carumbé," or "Carumbêa," is a small gamella. According to St. Hil. it is the "Indian" term for the "écaille de tortue." In the country parts the dorsal armour of the armadillo is still used as a pouch or calabash.

† It is said that even in these brick-like soils coffee and sugar, at any rate manioc and maize, can be grown in holes filled with a mixture of earth and manure. The pits are dug at intervals of six feet, they are one foot in diameter and about the same depth. I have not had an opportunity of seeing a gold field thus treated.

contrivances will be noticed in the following pages, as they present themselves on the river and the road.

The "cata," or pit, has already been alluded to; from these holes gold in grain and nuggets—the pelagæ and palacurnæ of Pliny—was extracted, after which the ground was supposed to be worked out. This system, like the "lavra," was peculiarly the work of the "Garimpeiro,"* the contrabandist and free lance. The first improvement which required more hands, and especially slave-labour, was the open cut called "talho aberto," or Socavão. Some of these works, the "Carapucu" at Jaraguá, for instance, near São Paulo, are extensive; but sufficient slope was not given to the banks, shoring up was not judged necessary, and the sides being well undermined, fell in. Thus a few negroes were crushed; their "almas," or ghosts—much dreaded in the Brazil—haunted the spot, and soon hunted away the stoutest hearts.

The most enterprising tried the "Serrilho," which we translate "shaft;" † it was, however, generally an inclined plane, a mixture of shaft and gallery. The precious metal was attacked with charges half powder, half sawdust; the slaves bore in buckets or wooden platters auriferous matter to a water-mill, working, perhaps, a pair of iron-shod stamps upon a hard, flat stone. The operations were carried on under a shed, always placed for better surveillance near the owner's house. When the "batêa" and "gamella" had done their work, a rude amalgam was sometimes tried, as in early California, and the loose mercury was recovered by squeezing through leather. They retorted it by placing the amalgam in a heated brass vessel, covered with green leaves. The latter, when parched, were removed with the sublimated globules on the inner surface. But the Brazilian

* Sometimes written as pronounced, "Grimpeiro;" it is the Spanish "Gambusino," made familiar by M. Gustave Aimard and Captain Mayne Reid. The "Garimpo" is the place where he works, the word is still applied depreciatingly to any digging on a small scale. Garimpeiro corresponds with our "night jockeyer," men who employ the hours of darkness in robbing rich holes of superficial gold. According to the Dictionaries, which ignore "Garimpo," "Garimpeiro" is a Brazilian word: Moraes suggests that it is a corruption of Aripeiro, from Aripár, to collect

pearls which have fallen from decayed piles of oysters into the sand.

† "Shaft" is here used of wells or pits open to the surface, whether perpendicular or not, the "whin-shaft" raises the ore to the surface: "sinkings" are downward excavations, "levels" when horizontal, or nearly so, and "risings," those that ascend. The "adit," or "adit-level," is the chief drainage tunnel cut to the surface at the lowest convenient spot: "levels" generally are horizontal galleries excavated in metalliferous veins, and "cross-cuts" those in non-metalliferous.

miner was ever careless about timbering and walling; he little regarded lighting or ventilation; the Davy and the Geordie were equally unknown to him; he ignored pumping on a large scale, and thus, when his mine became watered, he was compelled to quit it. Rude, however, as was his system, we shall see that it has been adopted by all the best English miners of the present day, and that the latter have been satisfied with a few and unimportant improvements.

SECTION III.

ENGLISH GOLD-MINING IN MINAS.

The first English Company dates from 1824, and was known as the Gongo Soco, or "Imperial Brazilian Mining Association." The diggings, which we shall presently pass, were in S. lat. $19^{\circ} 58' 30''$, and W. long. $43^{\circ} 30'$,* about forty-eight miles north-west of Ouro Preto, and twenty-four miles south-east of Morro Velho. Barometric measurements by the Austrian mining engineer, M. Virgil von Helmreichen, place it 3360 feet "above the sea at Rio de Janeiro." Gongo Soco was in the then municipality of Caethé; now in that of Santa Barbara.

The first owner was a Coronel Manoel da Camara de Noronha, who dug about the middle of the last century.† His son Isidoro, who died in poverty, sold it about 1808 for 9000 crusados to the Commendador and Capitão Mór José Alves da Cunha, a Portuguese, and to his nephew by marriage, the Barão de Catas Altas. The former, about 1818, pushed levels into the true lode, on the flanks of the "Tejuco Mount;" and it is said that before 1824 he extracted in one month 480 lbs. of gold. The Baron inherited the property, bought out by private arrangement all others who had claims upon it, and offered it for sale.

Mr. Edward Oxenford, who had travelled in the Brazil as a Mascate, or itinerant merchant, returned to England, advocated the purchase, and was sent by the Association to examine the site, in company with Mr. Tregoning, as chief mining captain.

* The observations were taken by Mr. William Jory Henwood, F.R.S., F.G.S., Chief Commissioner of the Gold Mines of Gongo Soco, Cata Preta, etc., etc.: this scientific man is still, I believe, living. His papers were printed in the *Phil. Mag.* 1846, xxviii., pp. 364—6, and in the

London, Edin., and Dub. *Phil. Mag.* and *Journal of Science*, June, 1848.

† Mr. Walsh is in error when he asserts that a Portuguese named Bitturcourt, and father of Isidoro, first worked the banks of the Gongo River.

The reports were favourable. The Baron parted with his rights for £70,000 (others say £80,000), and the sanction of the Imperial Government was obtained on Sept. 16, 1824, on condition of receiving the annual "quinto,"—curiously high, twenty-five per cent. of gold extracted. This was close upon the "all-speculating year, 1825," when one of 999 speculations was the "Potosi, La Paz, and Peruvian Mining Association." How little creditably to national honour ended that "grande et belle entreprise," the reader may see in the lively pages of Mr. Edmond Temple.*

In 1825 Gongo Soco was visited by Caldeleugh, who could not enter the mine, the owner being absent. In March, 1827, the first superintendent, Captain Lyon, took command. This is Lieutenant Lyon, R.N.,† who travelled to the Fezzan, where Mr. Ritchie, chief of the mission, died of anxiety and bilious fever, on Nov. 20, 1819. He also bought the Morro Velho ground from its owner, Padre Freitas, and sold it to the "S. John Del Rey" Company. The speculation prospered. In December, 1827, the quint paid at Ouro Preto was £20,982. Gongo Soco had become an English village in the tropics, with its church and chaplain consecrated by the Bishop of London, and the forty original hands had increased to 180 Englishmen, assisted by 600 free labourers and blacks.‡ Mr. Walsh, who visited the place in 1828, draws a pleasant picture, and the ground is said to have already produced 736 lbs. of gold.

In 1830 Captain Lyon was succeeded by Colonel Skerrett, who, by judicious military discipline, kept the mine in "apple-pie order;" he introduced the excellent system of making the negroes their own "feitores," or overseers. Colonel Skerrett left because his salary was not increased from £2000 to £3000; the Company, as often happens, showed itself penny wise and pound foolish, and thus lost a valuable servant. The decline and fall of the establishment at once began.

* "Travels in Various Parts of Peru, including a Year's Residence in Potosi," by Edmond Temple, Knight of the Royal and Distinguished Order of Charles III. In 2 Vols. Colburn and Bentley, 1830. The narrative makes one blush for the Potosi &c. Mining Association.

† Dr. Gardner calls him the "Northern Voyager."

‡ During the first year, when the greatest depth was three fathoms, the employés, including forty Englishmen, numbered 450. The highest number was 217 Europeans, 200 Brazilians, and 500 slaves. When the mine was "broken" there were 14 Europeans and 447 slaves.

After Colonel Skerrett came Mr. George Vincent Duval, in 1840-2. About this time it was visited by Dr. Gardner, who describes it as a thick stratum of ferruginous Itacolumite, with an inclination of 45° , and based upon clay slate, containing great masses of ironstone. Upon the Itacolumite lies a bed of auriferous Jacutinga, fifty fathoms thick, and upon this again is Itacolumite. About half a mile to the south of the mine he found a couch of crystallized and highly stratified limestone, cropping out at the same angle and in the same direction as the other rocks. He visited seven of the nine levels, each separated by seven fathoms, and thus he saw 294 of 378 feet. These galleries, pierced through the soft Jacutinga, were four to five feet wide and five to six feet high; they were strongly lined with eighteen-inch timbers of the hardest Brazilian wood, yet the logs were broken and crushed by the weight. The chief vein ran east to west; there were, however, many shoots or ramifications which gave gold in bunches—as much as 100 lbs. had been taken out in one day. The rich ore was washed and pounded in mortars. It was concentrated at first by common panning, afterwards by amalgamation; the poorer stuff was sent to the stamping-mills, and then washed. Dr. Gardner found the machinery here inferior to that of Cocaes.

But now appeared the truth of the Miner's axiom, "Better a low standard and high produce, than a high standard and low produce." From 1837 to 1847 the Brazilian Government liberally reduced its quinto to twenty per cent. Jacutinga is essentially a "weather-cock mine;" unlike those whose matrix is the rock, it may be rich to-day, and worthless to-morrow. The deep running lines could not be followed, and the expense of posts and stanchions, walling every foot, was enormous. Mr. Henwood then assumed command, and was followed by a committee consisting of Mr. John Morgan (senior), Dr. Hood, and others. This republican rule ended the matter, and reads a valuable lesson. In 1850 the Government compassionately diminished its claims to ten per cent.; in 1853 to five per cent.; and in 1854 foreigners were placed on the same footing as national industry, and laboured untaxed. The large working capital—too large, indeed, at first—became insufficient, and between 1854-6 the Company expended the whole of a reserve fund which had accumulated for years. The water entered; the

matrix was sopped to the foundations, and the workmen were drowned out,—the fault of nobody but of the drainage. In 1857 the Commendador Francisco de Paula Santos, to whom 150 contos were owed by the property, embargoed the negroes, as he had a right to do by Brazilian law, and presently became owner of the mining property. Gongo Soco died deeply regretted; it had spread itself into the branch mines of Boa Vista, Bananal or Agua Quente, Socorro, Campestre, Catas Altas, Cata Preta, and Inficionado; it had fed and fee'd the country for thirty leagues around, and it had netted nearly £1,500,000.*

Followed (April, 1830) the “St John Del Rey,” of whose origin I have given an account. In 1835 it was transferred to Morro Velho, whilst still preserving the name which appeared in the Company’s original contract. The misnomer sounds like the “Exeter Mine at Truro.” I retain, however, the complicated barbarism, which distinguishes it from another São João mine, merely remarking that such hybrid words should be banished from all our maps. For ten years after its removal the “St John” did little, and often that little was in the wrong direction. In 1845 its royalty was lowered from ten to five per cent.; in 1855 a reduction of one per cent. per annum was made till the extinction of the tax; and after 1859 it was relieved of the onus. During that year it began to yield five oitavas per ton, where before it had given two; the reader will presently see the reason why.

In due succession came up the “Cata Branca” (1832-3), with the Morro das Almas, in the municipality of Ouro Preto; the great Cocaes Company (1833-4),† in Santa Barbara, including its branches Cuiabá, Caethé, and Macahúbas, with its neighbour, Brucutú; and the short-lived Serra da Candonga Company, in the Sêro do Frio, which ended after two to three years.

* The figures usually given show a national benefit of some £333,180, thus expressed:—

Paid royalty to the treasury	£310,777	} (Lt. Moraes, £333,180).
„ export duty	22,403	

According to Lt. Moraes this Company extracted 34,528,098 lbs. of gold (20-car at thus laid out:—

Expenses	£1,013,253
Income	1,388,416

Profit	£375,163
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† Gardner, Chap. 13. I have given some details in Chap. 41.

Except Cocaes, which still lingers on, these associations lasted till 1844-5 and 1850. The failures affected the London market, and gold-mining in the Brazil was not looked upon with favour. Here, as elsewhere in South America, the vast treasures promised by Montesquieu, Robertson, and Humboldt, were not realised, or rather were realised to a certain extent, and—diverted. Convey the wise it call.

After 1859, when Morro Velho had “rehabilitated” speculation in the Brazil,—which bore blame when she deserved every praise,—other Companies cropped up. Minas had five: the “Este Del Rey,” including the Lavras do Capão and the Papafarinha, near Sabará,* and the Paciencia and S. Vicente, near Ouro Preto; the Norte Del Rey, in the Morro de Santa Anna, including the Maquiné Mine;† the London and Brazilian Gold-Mining Company (Limited), at Passagem, near Marianna;‡ the “Rossa Grande Company,” in the municipality of Caëthé,§ and the Santa Barbara-cum-Pari,‡ in the municipality of that name. There is a sixth—the “Montes Aureos Gold-Mining Company (Limited),” establishment in Maranhão; but I see that it is already in the market. The total capital of these establishments is usually set down at £600,000. Only two, the Morro Velho and the Maquiné mines, have as yet paid; the Passagem Mine has not paid, but probably will pay, and the rest have been failures—a dozen and a-half losses to two and a-half successes.

In the Brazil a gold mine may begin work economically enough. The owners of diggings which are supposed to be exhausted will generally sell cheap, and many would be contented with a fair per-centage on profits. The sum of £46,000 suffices for purchasing stock and rolling stock, for building, and for putting up one set of stamps,—say thirty-six head, which work, during the twelve hours, fifteen tons of ore, through grates of a sufficiently fine bore. Assuming the average yield of gold at five oitavas per ton, this would produce annually £10,000; the mine might be put in proper stope within the third year, when it should begin to pay. This easy effort of prudence would test its aptitude for good or evil, without seriously damaging the shareholders, so often victimised under the present reckless system, and without giving to the country an undeserved bad reputation in the markets of Europe.

* Chap. 41.

† Chap. 34.

‡ Chap. 29.

After reading a variety of reports,* I am able to describe the actual way of "getting up" an English Gold-mining Company, Limited (as to profits), in this section of the Brazilian California. A "chief commissioner," quasi self-created, one of the "Twenty-years-in-the-country-and-speak-the-language men," begins by laying before the British public a synopsis of advantages to be derived by the *actionnaires*. His experience must tell the following flattering tale in seven chapters. My readers need not suppose from this Democritic treatment of the subject that I am not in earnest. So was old Rabelais when he wrote, "En ycelle bien cultre gouste trouuerez et doctrine plus absconce;" and no one laments more than I do the dishonour which such charlatanism has brought upon the English name in the Brazil, to mention no other parts of South America.

1. The mine to be is situated in a good central district, close to the capital and to other great cities—the "astu" here is a mere village in Europe. If not so placed by Nature, it can easily be made so by the simple process of subtracting distance.

2. The pasture, the supply of timber and fuel, and especially the water, are abundant and of the best quality.

3. The ore, the lay of the lode, and the formation and the mineral characteristics generally, are similar to those of "St. John Del Rey." It may be well to invent some such high-sounding and well-known names as "West Del Rey" or "South Del Rey," upon the same principle which till late years called all coal "Wall's End." If invidious comparisons are required, an allusion may be made to the failures of Gongo Soco, Coceas, and Cuiabá.

4. The original Brazilian owner made a large fortune before the works fell in, and the miners were drowned out. Anything, however, can be "done by an English Company and Cornish miners."

5. The lode is from ten to thirteen feet wide at grass; it is at as shallow an horizon as possible, situated above some valley, so that the facility of draining by adits and openings is "of no common order."

6. The dwelling-houses are in a very dilapidated state, neces-

* I can especially commend the Report of the St. John Del Rey Mining Company, (Tokenhouse Yard, now presented half-

yearly at the meeting of the Proprietors): the system is excellent, and it gives at a glance all the information required.

sitating *quam primum* a Casa Grande for Mr. Commissioner, and similar outlay.

7. This splendid field for mining operations must prove immediately remunerative to shareholders; it is an "affair of facts and figures"—an "investment rather than a speculation." Finally, if the pretensions are to be of the highest order, there must be diamonds and other deposits of which the reporter "abstains from speaking."

Thus the Company will be formed; money will be spent, nothing will be made, and, in due time, dissolution will be the *dénouement*. Emphatically true in modern Minas Geraes is the Spanish proverb:—

"A silver mine brings misery, a gold mine ruin."

Nothing is easier than to suggest a ready and efficient remedy for this undesirable state of affairs. The simplest exercise of induction and deduction of reason and experience shows the necessity of obtaining accurate knowledge before entering upon such speculations. There ought not to be any difficulty in finding a confidential man sufficiently versed in mining and mineralogy, and, to speak plain English, above taking the bribes which will assuredly be offered to him. His report should be final, without any regard to the small fry of local traders and shopkeepers,—all, of course, merchants and esquires—who, expecting to profit by the outlay, volunteer golden opinions touching the new mine.

It is said that the Englishman going to India, left his conscience at the Cape, and forgot to take it up on his return. I know not where Europeans deposit these troublesome articles when bound for the Brazil, or whether they care to recover them when *en route* homewards. It is, however, a melancholy truth that, in this country, honesty seems to be the smallest item of the adventurer's stock-in-trade. In the mines, as in the railways of the Brazil, the fault, the cause of failure, lies, I repeat, not with the Brazilians, but at our door. There has been the grossest mismanagement both at home and abroad. Private interests have been preferred to public; in certain notorious cases a system of plunder has been organized; impossible schemes have been floated through the market; the merest speculators have waxed rich; economy has been wholly neglected, and money has been buried

as though it were expected to grow. The most lamentable result is the false conviction in Europe that the seed of capital cannot be sown profitably in the Brazil, when there is no country where, properly husbanded, it would bear a better crop.

The Morro Velho Mine has opened a new chapter in provincial history, proving that, even under adverse circumstances, much may be effected by men of honesty and energy, combined with scientific and practical knowledge of their profession; and I may end this sketch by expressing my conviction that we have well-nigh killed the goose that lay the golden eggs, and that until the present process shall be radically changed, it is better to leave the gold in the bowels of the earth.

On the other hand, I have something to say about the attitude of the Brazil in this matter.

“What does the mine pay to the State?” ask the well-educated. “These strangers carry all the gold out of our land,” say the vulgar, who would see unmoved a shanty surmounting a gold mountain. Lt. Moraes* speaks of seven English companies, “exploitant au profit de l’Angleterre les richesses incalculables que la Nature a enfouies dans le sol brésilien.” He calculates that between 1860-3 the Morro Velho Mine should have enriched the Treasury by “près un million de francs.”

But in its highly liberal policy the Brazilian Government was emphatically right. The educated and the vulgar, who look only to monies actually paid, and who fancy that enormous indirect benefits mean nothing, are as emphatically wrong. Had the Imperial impost not been removed from the Morro Velho and other establishments these must have been ruined. Those in power happily had the courage to assist their “Do ut des,” in opposition to the “dog-in-the-manger” policy, which is that of all half-civilised peoples.

“Brazileirismo” in the Brazil, and Americanismo in the Hispano-American republics, are never so rampant as when boasting of their country, a vanity even vainer than that of vaunting one’s birth. The “*torrão abençoado*” (Heaven-blest soil) has past into the category of chaff. The sun, the moon,

* Rapport partiel sur le Haut San-Francisco (Paris, Parent, 1866). This officer calculates that between 1860—1863 (four years), the Morro Velho Mine should have paid into the Brazilian Treasury one

million of francs (400 contos or £40,000). And he would have thrown it all away on a fanciful canal between the Rio Preto and the Parnaguá Lake, in order to imitate the Hudson-Champlain.

the stars, are subjects of popular braggadocio. "You have no such moon as that in France," I heard a Brazilian say to a Frenchman.

"No," was the reply: "we have a poor old night-light, well-nigh worn out; but it is still good enough for us."

Hence there is prodigiously "tall talk" concerning the magnificent Empire, the wondrous Land of the Southern Cross, with its mighty wealth and its splendid destiny. Whatever the latter may be, the riches are still in the ground, and the nation is undoubtedly poor. The capitalist will not, it is a truism to say, hazard money in a far country, when it would make as much at home; and the many risks to which he is exposed must raise his per-centage of profits.

I conclude, therefore, that if the Brazilian Government listen to that bad adviser, the General Voice, it will not deserve better fortune than what has befallen English mining and English railways in the Brazil.

As yet, however, let me repeat, the Government in question has displayed exceptional sagacity.

CHAPTER XXII.

LIFE AT MORRO VELHO.

“The best time I can get for maturing a commercial scheme or planning a sea-voyage, is at church, while the preacher is preaching. Away from the care and bustle of business, under the soothing sounds of the sermon, I have nothing to disturb my meditations.”—*Frank Dodge, quoted in “The Model Preacher,” by the Rev. H. Taylor.*

My notes taken at the Queen of the Minas Geraes Mines will not, I hope, prove uninteresting. They show what is English life in the heart of the Brazil, and they supply some details about a place worth studying.

The pretty site of the establishment is an irregularly shaped basin, about three-quarters of a mile long by half a mile in breadth. The narrow valley ends westward in an *impasse*—Voltaire forbids us to call it a *cul de sac*—formed by high ground, and the surrounding hills rise 700 to 900 feet above the Ribeirão. This stream, winding eastward, rolls a furious torrent during the rainy season, and in the dry half year the shallow water, thick with mudic and arsenical slime, must have a deleterious effect. The land around has been all disforested, and the vegetation is a mean second growth; much of the humus has been drained off by the Rio das Velhas, and the often fine soil has been much impoverished. The romantic beauty of shape is still there, and on bright days the sun and air make the colouring a pleasure to look upon.

To the north-west rises the Morro Velho, or Old Hill, that is to say, the place first worked, backed by the majestic Curral d’El-Rei, bearing 270° from the Casa Grande. To the north-west of the modern shafts are the first excavations made by the “antigos,” and which duly fill in. About one mile east, and beyond the “Mingú Mount,” is the “Morro Novo.” The latter has a quartzose vein, bearing “south 60° east;” it was held to be poor, but it may still work well. Indeed, in most parts there

is gold stone at a shallow horizon; but the question is, will it repay exploitation? Situated in a contracted, overcrowded space, the nucleus of the works is on the western slope of the valley; here are the huge water-wheels; the long, dark sheds covering spalling floors strewn with grey ore; engine-houses, and small whitewashed kiosk-shaped buildings, where the brakemen sit and control the hauling speed with hand gear. But there is no iron furnace blowing off sooty smoke by day and belching lurid flames by night; the trees are not poisoned, and the lips do not taste of chemicals. The bustle and the rattle of the stamps is no unpleasant sound by day, and in the dark hours the song of the water-wheels reminded me of the autumnal waves sporting and tumbling upon the Scheveringen shore.

The buildings extend from the northern bank of the Ribeirão up the ridge-spur, to an altitude of about 450 feet: here are the highest negro quarters, "Timbuctoo"—gentle reminder of what may have been motherland, and here live the Cata Branca blacks. Midway up are the various grim entrances to the big mine, and below it spread the appurtenances, smithy, spalling floors, and mining office. This side of the stream is of somewhat easier slope than the other. A conspicuous whitewashed building is the blacks' kitchen; the eastern part is assigned to the Padre Petraglia. High up, and safely placed, is the gunpowder house, and near it the cemetery where three Europeans were buried during our stay of one month. A little bridge (Amalgamation House Bridge) crosses to the southern bank, where the Amalgamation House is; a rocky ramp rises to the stables higher up, and at 60 to 65 feet of greater elevation is the "Casa Grande." The hill that backs the latter is occupied by the Company's store,* and beyond it, scattered over a mile or so, are the quarters occupied by most of the officers. The medical men, the assistant storekeeper, the Catholic chaplain, and the captain in charge of the mine, lodge on the northern bank.

As a rule, the houses are comfortable, with broad verandahs, and similar tropical appurtenances. But the situation is unwholesome; in front, the tall Morro Velho, the "impasse" to the west, and the high ranges to the north and south, must impede circulation. The low-lying locality has a climate the

* Properly called the "Armazém"—popularly the "Venda."

reverse of what a climate here should be: the sun burns by day, the nights bring sudden chilliness, and, as the sojourners in the Highlands of the Brazil complain, the four seasons of Europe come and go in twenty-four hours. The head-quarters and the officers' bungalows might easily be removed to higher ground; for instance, to the level a little above the Company's store. Many would doubtless declare that the place is too far from their work, but I hold this to be an advantage. All own that during the first months of residence they took regular exercise, and were in the best of health. Presently the Tropics asserted themselves; the daily ride or walk became a bore, the northerners became "caseiros"—stay-at-homes—and the end of inertia in the Brazil is liver. Much moral courage is required for the daily solitary constitutional over a path whose every plant and pebble are familiar to the eye; but the alternative may be thus laid down—inevitable "liver," loss of energy, loss of memory, loss of nerve, loss of health, and even loss of life. Equally difficult is the change of place which I vainly proposed at Sierra Leone and Bathurst. In those pest-houses man is content to be "left alone" to die. He loathes the idea of change, as the queer passenger does fat bacon, or the elderly Englishman a "new view of the subject;" to propose any alteration is personally offensive to him, and he duly hates the meddler who does it.

Morro Velho is sub-tropically situated in S. lat. $19^{\circ} 58' 6''\cdot7$, and the approximate longitude is W. $43^{\circ} 51'$ (Gr.).* The altitude is that of São Paulo, the city, a little over 2000 feet. Its dry season begins, according to the rule of the Southern Hemisphere, in April, and ends with October. During this period the thermometer ranges between 61° and 72° F., and the air contains from 0·811 to 1·000 of moisture (Mason's hyg.). Water is seldom colder than 39° F. Hoar-frost, however, appears on boardings and on the grass. Droughts would burn up the fields but for the dense morning fog, often thickening into a drizzle, which chills the body. The mist disappears first from the lower levels, lighted by the sun of 9 to 10 A.M.† Then comes a great

* The latitude was taken with a reflecting circle by Sr. Henrique Dumont, C.E. Dr. Walker with an Adie's sympiesometer made the altitude 2300 feet: Mr. Gordon 2832, and another observation with the sympiesometer (air reading 68° , liquor in tube 59° , and attached thermometer 72°), gave

3411 feet. I made the first floor of the "Guesten House" 2233 feet (B. P. 208° , temp. 63°).

† In Dr. Walker's Sanitary Report of 1850 we read that these mists "cover even the summits of the heights." I believe this not to be the case.

and sudden change of temperature. Dr. Birt, whose acquaintance I made *en passant* at Bahia, found during the first two years of his service that the difference in the shade amounted to 20° to 23° F. Dr. Walker's observations give during four months and a-half a minimum of 46°, and a maximum of 80°.*

There are usually midsummer showers, called the Rains of St. John. The first fire-fly appears about the end of July, and the last in early May. August has a few heavy downfalls. In early September the peasant begins to burn his fields, the large South American swallow† appears, and the Sabiá (*Turdus Orpheus*, Lin.), the kokila of the Golden Land, *not*, however, an "American robin," ushers in the wet season with song. "About the same time," says Mr. Henwood, then of Gongo Soco, "the humming-bird ceases its low, monotonous chaunt, which during the cold season may be heard from every low, sheltered bush in the open ground (*campos*) between Gongo and Catas Altas."

Thunderstorms, here called "trovoadas,"‡ sometimes accompanied by heavy falls of hail, usher in the tropical rains, which set in with a will about early November. As usual in the Brazil, the discharge greatly varies. For ten years the average was 68·28 inches; the smallest remembered was 51·57 in 1863; the average between 1864-6 was 63·00.§

About the end of January, or in early February, is a fair-weather interval, like our St. Martin's summer; it is called the "Veranhico," little verão, or summer: during a fortnight or three weeks the rains cease, and there is cloudless sunshine. I travelled through the Province of São Paulo during the "Indian

* For March	Therm. Min.	65°	Max.	80°	Adie's Symp.	27·90	—	28·40	inches.
,, April	,,	49°	,,	68°	,,	28·22	—	28·59	,,
,, May	,,	46°	,,	68°	,,	28·17	—	28·60	,,
,, June	,,	49°	,,	72°	,,	28·40	—	28·66	,,
For half July	,,	47°	,,	70°	,,	28·56	—	28·75	,,

The sun is in aphelion, July 2nd—the coldest season in these Highlands of the Brazil. This temperature reminds us of the results obtained by Dr. Blanc at Magdala in Abyssinia.

† The "Andorinha." It is also known by its Tupy name, Taperá or Majoi. The former must not be confounded with Tapéra, which the T. D. translates Aldcia Velha, or Sitio Abandonado, and remarks that according to Pison it also means the "Andorinha," which it does not.

‡ These trovoadas must not be confounded with the African "tornado," our corrupted word applied to a very different meteor.

§ The following are the figures for three years:—

In 1864 fall	=	61·98	inches.
,, 1865	,,	=	61·98
,, 1866	,,	=	65·14

summer" of 1867; overhead all was delightful; under foot everything was detestable.

The only pretty part of the Casa Grande is the outside. Its *terreiro*, or compound, is a flat space laid out with good gravel walks and with attempts at turf—an Anglo-tropical lawn. The edge of this grassy bank fronting north, and looking down upon the rivulet valley, is adorned with oranges, limes, and the ever-brilliant *Poinsettia*. Eastward are earth-banks, once a heap of rubbish, now bright with coffee and bananas. Behind in a deep gorge, with its irrigating stream, is the garden. The upper part shows foreign trees and flowers, which here suffer from two plagues. The "plantation ant," which the old Portuguese called the king of the Brazil, is a perfect "liberal," which here means a "know-nothing." It injures the produce of the country, but it "eats up" the stranger. The mistletoe-like "*Herva de Passarinho*,"* with its yellow-red bunches, resembling currants, is more fatal to trees. The main climber from the root embraces the trunk, and puts forth tendrils which penetrate the bark and suck the life-blood. It is hard to kill; if cut across it renews itself, they say, and the seed is often deposited upon the upper branches, especially by the "*Bemtivi*."†

The kitchen garden, under Mr. Fitzpatrick, who is handy at all things, from killing a sheep to culling a bouquet, gives excellent salads and cabbages. The radishes are rather tough and woody, the potato does not thrive. For nine years *Morro Velho* has had a horticultural society, with the requisite president, committee, and treasurer; it meets in the first weeks of February and August, and useful articles are then given as prizes. Mrs. Gordon, who has lived in Jamaica, has introduced the "*casareep*," and her "*pepper-pot*" equals any curry, and far excels "*palm-oil chop*." Brazilians mostly throw away the juice of the poisonous manioc, of which so many uses may be made. Every old book has a chapter "*wherein is declared how terrible is the water of Mandioca*," and never fails to tell you that it produces large grubs with which the good wives of the Indians, and—this is insinuated *sotto voce*—even white women, have eased off their husbands. Yet, curious to say, the savages knew how to evapo-

* "The herb of the small bird."

† This amusing little wretch (*Lanius pitangua*), whose noisy cry expresses, "I

saw you well," or "Welcome!" is mentioned by every Brazilian traveller. Prince Max. (i. 63) also gives the name *Tectivi*.

rate the volatile acrid principle; they concentrated the juice with the *Crumari cumbari*, or *Cumari*, the *Capsicum frutescens*, a wild "bird pepper," and they made *Cassareep*,* which they called "Ticupi," or "Tucupe."† This "tempero," a sauce to be compared with soy, is still known, I am told, to the backwoodsmen of the Northern Brazil.

The *Casa Grande* is the old house of the *Padre Antonio Freitas*, of course altered and added to. *Caldcleugh* (ii. 275) describing the senior and his nephew, *Padre Joaquim*, remarks that the padre's wife was very beautiful, with black eyes, and "nice and fat."‡ The padre, after having the grace to settle *D. Silveria* in the neat little *Fazenda de Santa Anna*, on the *Sabará Road*, died at *Congonhas*, but during Lent he revisits his earthly home, and freely takes what he wants from the cupboard. So *Pedro*, his grey-headed slave, with simple African fetish faith, places meat upon the table, and often sees the "larva" passing from room to room. Uncharitable persons have opined that the good priest has been transferred to a locality where walking exercise is not permissible, but tenets will differ upon so weighty and obscure a subject.

The Superintendent's quarters, I repeat, should be changed. The situation is close to the stream—one of the hottest, the coldest, and the dampest of tenements. The Company's store was once the *Casa Grande*; it might return to that honour. Nothing is more injurious to the prosperity of the mine than a frequent change of commanding officers; and the climate, combined with the peculiar influences of the place, requires that

* The following is the recipe for making "Cassareep," and it is a good action to make it public:—

† To 1 gallon of brine from salted beef add 2 galls. of (poisonous) manioc juice, which must be as fresh as possible. Simmer in earthen pot for six or seven hours. After the third hour add 1 lb. of unground black pepper corns, $\frac{1}{2}$ lb. of allspice, $\frac{1}{4}$ lb. of mace, 4 nutmegs pounded in mortar, and 2 ounces of cloves. If not hot enough add bird peppers whole. Pass through a fine sieve, bottle and seal. "Pepper-pot" is simply meat and vegetables put into "Cassareep;" it must be simmered every day, whether used or not, and the wastage compensated for by adding as much Cassareep (a wine-glass full or so) and as many peppers as required. The

vessel should be a flattish pot of the most porous clay, which will easily imbibe the Capsicine.

‡ The Tucupe is still used in the Amazonian regions where the "Red" blood remains. I have heard that beasts which take a long time to chew can with impunity eat manioc, whose poisonous juice flows out of their mouths.

§ "Bem gorda:" fatness, amongst all the Southern Latin race, including the Brazilian, being equivalent to fairness. Possibly the mixture of Moorish blood causes the taste—who can forget Clapper-ton's widow Zuma, the "walking tun-butt!" Ugly, old, thin, are the positive, comparative and superlative of contempt addressed to the woman of the Mediterranean.

every attention be paid to health. Having once got a valuable man, keep him alive.

To the north-east of the Superintendency, and half hid by shrubbery, is the "Station Library," as we should say in India, externally a little octagon, tiled and whitewashed. There are 920 volumes, 800 for loan, and the rest for school purposes. The librarian is the chaplain, a clergyman licensed by the Bishop of London. The shelves show some good books of reference; unfortunately, nearly all those of local interest, as Spix and Martius, and Lyon's Journal, are missing. They should be found, and the delinquents fined. A few paces beyond the Library lead to the Company's offices. Here at 9 A.M. daily is held the officers' conference. I consider the system worse than a council of war. Here, too, on the first Saturday of every month, pay is issued to the Brazilian miners and labourers, free and unfree. The Europeans receive their money every two months, the day being appointed by notice.

The only level walk in or about Morro Velho is along the "Rego de Cristaes," or Crystal Leat. Risking many a tie—douloureux—you ascend the Store Hill, and enter the "Retiro" village, built upon a well-drained slope. Here whitewashed cottages of Brazilian aspect rise, row behind row, each fronted by its garden patch. These are the quarters of the English miners and their families. The rent varies from 0\$500 to 1\$500 per mensem. Others are placed at Mingú, behind the hospital; three families (August, 1867) are living near the Praia Gateway, and some are close to Congonhas. The Company has built beyond the Retiro village cottages for the Brazilian and German miners, but the house accommodation generally is poor, and might be improved with small outlay and great profit.

Entering the gate we strike the Rego, along whose right bank Mr. Gordon has laid out a neat road. Here in the hot evenings young Cornwall repairs to bathe. The water rises in the Cabeceiras Hills, nearly four miles distant along its course, from near the ridge leading to the Paraopéba* district. This part of the country is high. The south-western extremity of the "Morro das Quintas," *alias* "do Ramos," rises 1200 to 1300 feet above

* The Paraopéba River runs on the other side of the ridge, about eleven leagues westward of the Rio das Velhas, and

here the lay of the two valleys is nearly parallel.

the stream, and on the south-east there is a still loftier block, the "Morro do Pires." Formerly the stream discharged through Congonhas; it was bought by Captain Lyon, and was taken up at a level to command the mine. It is one of the many courses which collect the waters of the adjacent streamlets. Undine is thus compelled to turn the huge wheels, to raise the ore, to wash it, and to deposit through flumes the tailings of the Praia. The process is costly, extending over twenty-nine miles, and the tents are continually suffering from floods, earth-slips, and that riva miner, "parvula . . . magni formica laboris." The Cristaes crosses in launders the Retiro Ravine, flows in a water-course round a hill to the receiving cistern, and then passes over by one of the finest works in the establishment, the deep gorge known as the "Criminoso." Inverted iron syphons plunge into the depths, and deliver 2000 cubic feet per minute about 182 feet above the Ribeirão, which finally drains off the water.*

Returning from the walk, we pass the little Protestant chapel. As a rule, it is tolerably attended in dry weather, when the congregation may number 100 souls, although Tregreagh sometimes does complain that he has lost "all relish for his prayers." The mechanics sit on the right side, the miners on the left. I found the singing to be that of the country church in Great Britain generally, suggesting the question, why should men who cannot sing a song, sing psalms and hymns? After not hearing the English Litany for a length of days, we cannot but think of the dictum of Dr. Newman, the Oratorian, namely, that "Protestantism is the dreariest of possible religions, and that the thought of the Anglican service makes man shudder." Surely it might be altered for the better, but is there any middle term between the God-like gift of reason or the un-reason of Rome? †

On the next Sunday I tried the Padre Francisco Petraglia,

* Length of Cristaes inverted pipes from cistern to cistern	740 feet	5 inches.
Height of framing from surface of water	81 "	6 "
Difference of level on the opposite sides	23 "	11 "
Height of pipes from the lowest part to the upper end of } the discharge, about	120 "	0 "
First set of pipes have internal diameter of	14 inches.	
Second ditto "	12 "	
Thickness of iron in upper part "	$\frac{6}{16}$ ths	of inch.
Ditto " lower "	$\frac{3}{8}$ ths	"

Pressure on lowest part about 45 lbs. per square inch. This highly civilized aqueduct was put up by the head mechanic, Mr. Rouse.

† "The rational form of thought must necessarily be the last of all." M. Cousin Cours de 1828, p. 28.

who affects the other side of the Ribeirão of Boa Vista. The chapel was licensed by the Most Reverend the Bishop of Mariana. The first incumbent was a Portuguese; in August, 1860, he was succeeded by the present, a retired Garibaldian. My wife was much scandalised to hear that the altar lacked its stone; but the church has not been consecrated, and there is such a thing as "communion en blanc." The ornaments are not rich, the monstrance is merely a watch-case, with metal rays, and there is some want of "a vessel with hyssop for the aspersion of the church and to keep the holy water." The Padre does not disdain the early weed, and is much liked by all, except those who resent the immense superiority of his fireworks over the national article.

Mass was to be celebrated at 10.30 A.M., and we found a small crowd, mostly black, gathered about the chapel. A few Brazilians rode up; they had probably sent or walked two or three miles to catch the horses which they had used for 200 or 300 yards—thus far like the old Mameluke Beys, who would not cross even a street on foot. Some delay was caused by collecting grist for candles, and for the ecclesiastic mill generally. A table loaded with heaped coppers stood inside the western entrance, fronting the huge altar. It had been pay-day, and each one, as he or she went in, knelt, kissed the offered stole, and delivered his or her mite. A bald-headed black sacristan directed, from his cunning eyes, a probing look at every coin, and with sneer and leer, and indescribable gibe and jeer, corrected the few braves who would not "lend to the Lord," or who lent too prudently. The satirical Sr. Antonio Marcos declared that in every chapel roof there is a hole, through which the drop* percolates into the priestly pocket.

This hardly decorous scene ended, we all entered, the whites taking station in front, the blacks behind; men standing and women squatting on the floor. This old custom still prevails in country places: only the most civilized cities in Brazil afford benches. All were dressed in Sunday attire; the chapel was a bed of tulips, with tall sable stamens and a few whitey-brown stigmas. The conduct of the flock was in every way creditable,

* The word used was "Pinga," whence is derived the verb pingar, to take a drop, often used with Pitar, to touch one's pipe. The sentiment suggests the Basque proverb "On-gosseac guizon bat bilic ines seguin

eliça-barnera, eta esta gneros hautée atera," Avarice having slain a man, took sanctuary in the Church, and since that time has never left it.

their singing was better in time and tune, and there was more fervour than in the rival establishment. Perhaps the cause may be that the service is short and the sermon is shorter; yet in matters of homiletics the good Mr. Armstrong does not require a sermon-meter. Padre Petraglia inculcated very severely Faith, Hope, and Charity, and demanded alms for a white porcelain St. Sebastian, who, grilled with arrows, occupied a table hard by: those who would not "down with the dust" were all "burros and cachorros"*—donkeys and dogs. This was suiting language to modified intelligence with a witness. Unhappily the Reverend has forgotten Italian and has not learned Portuguese—here a common phenomenon, and not a little puzzling to Hamitic comprehension.

* The strange primness and "respectability" of the old Portuguese forbade them to pronounce the indelicate word *cão* (dog) on the same principle that a Maltese peasant when speaking of his wife says "saving your presence." He therefore preferred *Cachorro*, a low corruption of the Latin *Catulus*, and made "pup," like "post-boy" or "drummer-boy," do duty for its senior. Thus also all the Neo-Latin tongues have taken the name of

a horse, not from "Equus," but from *Ca-ballus*, "a nag."

A similar primness may be observed in our "Philistine" English of the present century. Sketch, for instance, the figure feminine. She has a bosom but no breasts, a stomach and a spleen, but no belly nor kidneys. I believe that she has legs, but no thighs; she has certainly ankles, but she wants calves: and so forth.

CHAPTER XXIII.

THE PAST AND PRESENT OF THE ST. JOHN DEL REY MINE AT MORRO VELHO.

“Brazil does not contain any gold-mine.”—*Ure's Dictionary, sub voce.*

THE Morro Velho Mine was first worked in 1725 by the father of Padre Freitas, who bought it with 150,000 cruzados, £600 of our money, but in those days a very different sum. The Padre sold it, as has been said, to Captain Lyon, and the total cost of the estate has been £56,434 12s. 7d.

Our earliest notice of it is in 1825, when Caldcleugh visited “the gold mine of Congonhas da Sabará.” He describes it as an immense “quebrada” or ravine, worked almost through the heart of a mountain, whose upper stratum, disturbed by the earlier miners, was a *débris* of quartz, iron, and red earth. The lode was a highly-inclined mass of auriferous chlorite slate, intersected by quartz veins, where gold resided in ferruginous and arsenical pyrites. The walls of the mine were encrusted with white acicular crystals, an impure sulphate of alumine. The Padre blasted his ore, and when short of powder he used the Hannibalian method of rock-splitting—with water, however, not vinegar. The metal was stamped in five mills made progressively powerful, and they produced 25—30 oitavas per diem of poorish gold, seldom exceeding 19 carats. The chief work was the “Vinagrado” lode, so called from the reddish colour of the stone, and it is said that the owner extracted from it in two months 24:000\$000. This was done with seventy slaves, each hand receiving 1½ oitava of gold per week.

Gardner, memorably ill-received by Mr. Goodair, Superintendent of Coceas, was welcomed to Morro Velho by Mr. Crickitt, Acting Chief Commissioner for Mr. Herring. The traveller spent a month there in 1840, and has left an interesting account of the mine in its younger days. He found the auriferous vein

occurring in greyish-coloured clay slate, and consisting of quartzose rock, mixed with carbonate of lime, and strongly impregnated with iron and pyrites of copper and arsenic. The lode, whose general direction ranged east to west, was about seven fathoms wide, a little to the east of the central workings. Here it divided into two branches running to the westward, whilst two others which had been more deeply mined, extended to the east. The ramifications gradually diverged, took a north-easterly direction, and then ran parallel to, and about 100 feet from, each other. The quantity raised varied from 1500 to 1600 tons per month, and each ton gave a mean of 3—4 oitavas, and a maximum of 7. The Tyrolese Zillerthal, a running amalgamation process of revolving-mills, had been tried at Gongo Soco, and had abolished the batéa. Here they failed. The arsenic formed with the gold an alloy which rendered the operation difficult, and the waste of quicksilver was excessive. Roasting and calcining the ore had also been abandoned, the arsenical fumes having proved dangerous, and it is said that a black was poisoned by them when treating the refuse sand.

The early Reports of the present Company describe the main body of the metalliferous mass as occupying the southern flank of a high mountain, whose contour it follows in parallel lines: at the eastern extremity it bends north, and becomes too small to be worth pursuing. The mine consisted of three adjoining workings in the same lode. The easternmost was the "Arsenical," ten fathoms deep: in the centre was the principal open cut called the Bahú, or "box-hole,"* whilst westward, also ten fathoms deep, was the now deserted Quebra Panella, or break-pot, so termed from its uneven surface.

Mr. Herring proceeded to push with all possible force an adit for unwatering the mine at a deeper level; to apply draining and stuff-hauling machinery, and to sink the lode and break it by stope-work. As a guard against falling, "letting arches remain" proved successful. He also set up "Arrastres" or triturators,† each of which worked in the twenty-four hours four tons of refuse

* The "Bahú," the French "Bahut," a travelling trunk. In the Brazil it is applied to many features, such as a square rock rising from the water, or a cubical block upon the summit of a mountain. In mines it is the hollow where the drainage gathers and forms a well: thus it is op-

posed to a "Cachoeira," ground where the water falls over and does not sink. Hence many great mines have a Bahú and a Cachoeira.

† In Chap. 26 I have explained this arrangement.

sand. From an average of twenty-seven head of stamps, the yield in December, 1835, was 27 lb. 11 oz. of gold. In 1838 communication was opened between the Bahú and Quebra Panella. Mr. Herring proposed to call them the "United Mines," but the old names were perforce retained. In July, 1838, the former workings of the Gambá,* a northerly off-set from the main lode, and lying to the eastward of the United Mines, were cleared out, and the "Vinagrado" was abandoned. At the same time, the "Cachoeira" or easternmost section of the great vein was opened. Presently was discovered the important fact that the whole mass of lode lies downward in nearly a true eastern direction, and the dip carries it forward some five feet ten inches for every six feet sunk when stoping.

In 1847, after his long service, Mr. Herring went home and died. Morro Velho has lost all her Commissioners in the prime of life. He was succeeded by Mr. George D. Keogh, formerly Secretary to the Company, an active energetic man, but without practical knowledge. In his day (1846) Mr. Thomas Treloar became the Head Mining-Captain, and the Company sent out a chaplain, the Reverend Charles Wright, who was sensibly directed not to trouble himself with conversion, but to open a school for the children of their European employés. In 1855 Mr. Thomas Walker, M.D., became Superintendent. An amiable and honourable man, he dreaded responsibility, and he trusted much in others: thus, as the gold returns prove, his rule was not very successful. He also died, and in 1858 Mr. Gordon took charge. No more gold-weighing in private was allowed, and the boast that three Superintendents had been got rid of, and that the back of the fourth would soon be seen, was notably stultified. The prospects of the Mine presently improved, and the consequence was a dividend.†

* Gambá, in French "Sarigue," is a Brazilian marsupial which does the duties of a fox (*Dedelphis carnivorus* or *Azaree*). It is applied opprobriously to a negro as well as to a mine.

† The following is an abstract of the gold produced by the Morro Velho Mine under its several Superintendents: my information comes from the best source—the Company's Annual Reports.

		Mr. Herring (1837—1847).	
In 1837	Morro Velho produced	. . .	41,861 oitavas of gold.
" 1838	" "	. . .	60,472 "
" 1839	" "	. . .	63,842 "
" 1840	" "	. . .	76,908 "
" 1841	" "	. . .	70,945 (= 68 lbs. 1 oz. Troy).
" 1842	" "	. . .	92,744 oitavas of gold.
" 1843	" "	. . .	127,834 "

It is easy to superintend in England establishments which have been drilled for years, perhaps for generations; far otherwise in these regions, where the weight rests on one "pair of shoulders." Directors of future Companies, if they would benefit shareholders rather than promote friends and relations, should be as careful in choosing a Superintendent as they have been in the selection of a reporting engineer. At the mine he should possess the absolute power of a colonel commanding a French, not an English regiment, and receive daily reports from his officers, instead of meeting them in consultation: he should be entitled to make and unmake all his subalterns, and should be expected to take upon himself all responsibility. The subaltern might be allowed to send him complaints against his superiors, and if unable to substantiate them, he should at once be dismissed.

It is pleasing to see the excellent arrangements of Morro Velho amongst a people so defective in the organising and administrative capacity as are the English—at least in the Brazil. Let me cite, as an instance, a certain Anglo-Brazilian Railway,

March 1, 1844 to February 28, 1845	Morro Velho produced	124,432	oitavas of gold.
" 1845 "	" "	1846	" "
" 1846 "	" "	1847	" "

Mr. Keogh (1847—1855).

March 1, 1847 to February 28, 1848	Morro Velho produced	175,439	"
" 1848 "	" "	1849	" "
" 1849 "	" "	1850	" "
" 1850 "	March 10, 1851	" "	278,654
" 11, 1851 "	" "	1852	" "
" 1852 "	" "	1853	" "
" 1853 "	" "	1854	" "
" 1854 "	" 11, 1855	" "	364,428

Dr. Walker (1855—1858).

March 11, 1855 to March 21, 1856	Morro Velho produced	346,031*	"
" 21, 1856 "	" 20, 1857	" "	307,261
" 1857 "	" 19, 1858	" "	261,247

Mr. Gordon (1858—1866).

March 20, 1858 to March 18, 1859	Morro Velho produced	285,615	"
" 19, 1859 "	" "	1860	" "
" 1860 "	" 19, 1861	" "	428,166
" 20, 1861 "	" 20, 1862	" "	543,637
" 21, 1862 "	" 22, 1863	" "	529,193
" 23, 1863 "	" "	1864	" "
" 1864 "	" "	1865	" "
" 1865 "	" "	1866	" "

* On March 7 about 170 tons fell in from the roof and south wall of the Bahú Mine. The borers and kibble-fillers all escaped.

† On February 13 a fall of killas took place in the West Cachoeira, and on April 19, eight miners were killed in the Cachoeira Works.

which consisted of four independent kingdomlets. Mr. Superintendent was not allowed to give an order, and thus he superintended nothing. Mr. Chief Engineer commanded the road. Mr. Mechanical Engineer was lord supreme over a few carriages and inclined planes, whilst Mr. Transport-Manager, who was also, curious to say, Mr. Storekeeper, ruled as absolutely as the chiefs, his neighbours. The Brazilian gazed with wonder. But Mr. Gordon is an Irishman, and the "individuality of the individual" is less bristly, less tyrannous in this section of the Keltic race than in the Anglo-Briton.

We have seen that the three great mines form a single continuation of the same line of mineral. The Quebra Panella is westernmost; next to it is a small affair, the Champion ground, —so called from a person, and not used in the common mining sense; in the centre is the Bahú, divided into east and west, whilst over the Bahú and easternmost lies the Cachoeira,* also having two sections. The "Box-hole" and the "Rapids" are in fact one mine. The early workers left a large wedge or bar of killas between them, but this, after due consideration, was removed in 1860.

The breadth of the lode varies from four to sixty feet. The general direction where worked is west to east, with northerly shiftings. The dip is 45° , rising to a maximum of $46^\circ 30'$, or 47° . The strike is from south 82° east to south 58° east. The cleavage planes of the killas are in some places transverse to, in others parallel with the lode. In certain sections of the mine-walls they bear north 36° east, but the average is more easterly. The direction is south 46° east, and their dip is at angles varying from 43° to 70° . Parts of the walls have been found to be baulk and unsound, jointy and scaly, but in the early Reports the evils were greatly exaggerated. The underlay or underlie dip, or inclination of the mineral vein, is 6° in the Bahú and 8° in the Middle Cachoeira. Its dip varies from south 82° east to south 58° east,

* In July, 1867,

The vertical depth of the Cachoeira Mine was . . .	189 fathoms.
,, depth on the dip of the lode	264 ,,
,, length of excavation (E. and W. of the Sump)	66 ,,
The width of the excavation varied from 6 to 45 feet, average	29 feet.
The vertical depth of the Bahú is	179 fathoms.
,, depth on the dip of the lode	207 ,,
,, length of the excavation (west of Sump, or lowest } part of the shaft) }	50 ,,
The width of the excavation ranged from 11 to 90 feet, with an average of	44 feet.

and the inclination from 42° to 47°, but everywhere parallel with the striæ. The richest part of the lode is still in the eastern Bahú. There may be good lody matter nestling to the south-east, and in that direction "dead works" are being carried on with zeal. Much had been expected from the western extremity, but a shaft sunk there gave very poor results.

During the half-year between September and March, 1866—1867,* the net profit on the working of the mines had been £49,131. After making all reductions, there remained available for dividend £54,434, and the Directors "had the satisfaction" of recommending the payment of £4 5s. per share, free of income-tax, and independent of the 10 per cent. carried as usual to the reserve fund. In this prosperous state I left the mine. But shortly after, in the night of November 21, 1867, a fire broke out, and despite all efforts considerable damage was done.

* The following are the figures between March 23 and September 21 of 1866 :—

9 days in March yielded	19,627	oitavas.
April	50,046	„
May	60,454	„
June	52,076	„
July	48,405	„
August	52,016	„
September (21 days)	32,028	„
<hr/>		
Total	314,652	
		£ s. d.
The net profit on the working was	50,566	9 8
Interest on moneys unemployed	1,570	0 0
Balance of undivided profits	743	11 4
<hr/>		
Total	£52,880	1 0
Deducting the London expenses	1,193	16 3
<hr/>		
Remain for dividend	£51,686	4 9

During this half-year 7000 tons were raised in excess of the previous half-year, or 53,698 to 46,629, and this is the greatest amount yet quarried. On the other hand it had 41·6, and the latter only 36·6 of the valueless killas.

CHAPTER XXIV.

LIFE AT MORRO VELHO—(*Continued*).

“Ipsaque barbaries aliquid presentit honesti.”

A PECULIAR sight, and very fit for a photograph, is the Revista or muster of the Blacks, which takes place every second Sunday. When we were there about 1100 out of 1452 attended in the “Compound” fronting the “Casa Grande.” Both sexes were bare-footed—everywhere in the Brazil a token of slavery. The women, fronted by a picket of twelve young girls, were ranged in columns of six companies. They were dressed in the “Sabbath” uniform, white cotton petticoats, with narrow red band round the lower third; cotton shawls striped blue and white, and a bright kerchief, generally scarlet, bound round the wool. On the proper right, perpendicular to the column, are the “good-conduct women.” The first year’s badge is a broad red band round the white hem, and replaced by narrow red stripes, one for each year, till the mystic number seven * gives freedom. We saw ten women and as many men officially apply for the preliminaries to manumission.

Ranged behind the women, the men are clothed in white shirts, loose blue woollen pants, red caps—Turkish or Glengarry—and cotton trousers. The “jacket men,” as the “good conducts” are called, stand on the proper left of, and at right angles with, the battalion of Amazons. They wear tailless coats of blue serge, bound with red cuffs and collars, white waistcoats, overalls with red stripes down the seams, and the usual bonnets; each has a medal with the Morro Velho stamp, the badge of approaching freedom. Children of an age to attend the Revista are clad in the same decent comfortable way; a great contrast they offer to the negrolings that sprawl about the land.

* The customary period is 10 years, but it has been humanely reduced.

The slaves answer to the roll-call made by the heads of the respective departments. This done, the Superintendent, followed by the Manager and Assistant Manager of the Blacks, and the two medical officers, walks down the companies and minutely inspects each individual. I observed that almost all the "chattels" were country born; there was only one Munjolo,* distinguished by the three scars of his race; the other "persons held to service" call him "Papagente" or man-eater.

After inspection, a pay-table was spread before the door, and the girls and small children received their allowance of pay and soap. The three coppers (0\$120) of former days have been raised to 6—8 for those employed on the spalling floor, and the stone carriers get 12 "dumps" of "obligation." By extra earnings and overtime,† the pay will increase to 16—20 coppers. Each takes per week half a pound of soap; the cost of this article to the Company ranges between 300\$000 and 400\$000 a month, or annually 360*l.* to 480*l.* The men and married women are paid at the Public Office. The former anciently received 4 coppers, now they get double, and by industry they may gain from 8 to 10 patacas each of 8 coppers. The average of rewards and overtime paid to the blacks amounts to 1600\$000 per fortnight, or about 3840*l.* per annum.

Muster over, both sexes and all ages are marched off to church. The day is then their own. The industrious will look after house and garden, pigs and poultry; they will wash and sew, or fetch water, wood, or grass for sale. The idle and dissolute will keep the day holy in African fashion, lie in the sun, smoke, and if they can, drink and smoke hemp, like the half-reclaimed savages of "Sã Leone." Dinah here and elsewhere is proverbially fond of trinkets and fine rags. Parade over, she will doff her regimental attire and don a showy printed gown and a blazing shawl, the envy of all beholders.

Once the negroes showed us what in Hindostan is called "tamasha," in Spain and Portugal a "folia," in Egypt and Morocco a "fantasiyah," and here a "Congáda" or Congo-ry. A score of men, after promenading through the settlement, came to the Casa Grande. They were dressed, as they fondly imagined, after

* A well-known race from the lands east of the Congo regions. St. Hil. writes the word Monjolo, thus confounding the

animate with the inanimate machine.

† Technically called "fazer horas."

the style of the Agua-Rosada House,* descended from the great Manikongo and hereditary lords of Congo land. But the toilettes, though gorgeous with coloured silks and satins, were purely fanciful, and some wore the Kanitar or plumed head-gear, and the Arasvia or waist fringe, and carried the Tacape or tomahawk belonging to the red man. All were armed with sword and shield, except the king, who, in sign of dignity, carried his sceptre, a stout and useful stick. The masked old man, with white beard, trembling under-jaw, chevrotante voice, and testy manner, was cleverly represented by a young black from Sabará. On his right sat the captain of war, the Premier; on his left the young Prince, his son and heir, an uninteresting negrokin. Of course the buffoon of the Dahoman court was there, and the fun consisted in kicking and cuffing him as if he were one of our clowns or "pantaloons."

The "play" was a representation of the scenes which most delight that mild and amiable negro race, orders for a slave hunt; the march, accompanied with much running about and clashing of swords, which all handled like butchers' knives; the surprise, dragging in prisoners, directions to put to death recreant ministers and warriors, poisonings and administering antidotes—in fact, "savage Africa." His Majesty freely used his staff, threshing everybody right regally. The speeches were delivered in a sing-song tone; the language was Hamitico-Lusan, and there was an attempt at cadence and rhyme. Slaughtering the foeman and drinking his blood were the favourite topics, varied by arch allusions to the Superintendent and his guests. After half an hour they received their bakshish and went to show their finery elsewhere.

The ceremonies of the Sunday ended with five couple bringing up as many newly baptised bits of black, to receive the reward of fertility. Payment for progeny is a good idea; as a rule the Brazilian slave girl says, "What has a captive† to do with

* It sounds like "chaff," this rose-water title adopted by full-blooded negroes, but it is pure history. An interesting account of the dynasty, and a sketch of "Nicolas, Prince of Congo," has been lately given by M. Valdez. (Vol. II. Chap. 2, "Six Years of a Traveller's Life in Western Africa." London: Hurst & Blackett. 1861.)

† "Cattivo" (Cattiva, fem.), euphuistic for "escravo," or "eserava," which is opposed to "forro," a freeman, the Arabic حُرّ. A similar pretty term for buying slaves is "resgatar," to ransom, because officially they are supposed to be thus saved from being murdered by their hostile captors.

children?" At Morro Velho, on the contrary, negroes desire issue because they are temporarily taken off work. Unfortunately, when the second babe is to be born, the first is neglected, and the doctor is rarely sent for till death is at hand. It is an object to nurse only one child, and to be ready for bearing another when required. Thus the hospital books* for the first six months of 1867 show that the death-rate of negroes has doubled the birth-rate: with a total of 1452, 16 were born and 32 died.†

The sires of "occipital race" are in a state of wonderful grin—"patulis stant rietibus omnes." The mothers, in marvellous gold chains, are marshalled by a big black Meg Merrilies, who seems omnipotent over her sable flock. Each matron receives a mil-reis, a bottle of wine, and a bit of the best advice from the Superintendent. When the ceremony ends, the scamp of the party—he is ever foremost on such occasions—proposes three cheers, and a tiger for Mr. Gordon, and all depart in high feather.

A slave muster is also held daily in the great hall of the "Blacks' Ranch," which is lighted up during the dark season. The bell sounds at 5 A.M.; half an hour afterwards, the Brazilian assistants, in presence of Mr. Smyth, call out the names, first of the men, then of the women, and lastly of the new comers, who, being sometimes rebelliously inclined, are being broken to harness. Breakfast is cooked overnight, and each labourer carries off his meal.

I also visited the hospital, which is under the charge of Mrs. Holman, the matron, and inspected the reports, transmitted monthly and yearly to the directors. The building is as well situated as any other, and is clean and new, spacious and convenient; whilst the medical men live close by. Yet the blacks have, like Sepoys, an aversion to it, and prefer to die in their own huts; consequently many of them are brought in only when moribund. There is a white ward, but Englishmen are usually treated at home, and they get sick leave, if absence from work be deemed necessary.

The medical reports take, I think, rather too favourable a

* Since December, 1866, Dr. Weir has kept a register of Births and Deaths of all whites and negroes, free Brazilians, who work in the establishment, not included. Before that time births were registered,

deaths were not.

† Castelnau (i. 184) is of opinion that the birth-rate does not balance the death-rate of slaves in the Brazil, and I quite agree with him.

view when they declare the black population of Morro Velho to be "as a rule healthy." Dr. Robert Monach remarked in 1843, "When we consider the constitution of the negroes, the modified(?) texture of their skin, performing a greater extent of function than in the European, and recollect to what great and abrupt changes of temperature they are continually exposed, from a very variable climate,* their great carelessness, and the nature of their occupations, it must be granted that the mortality is small, a circumstance which affords the best proof that every care is taken to preserve them in good health." In 1846 a "remarkable circumstance" was observed, namely, that of the 14 deaths 1 only was from the English negroes of Cata Branca, 2 were of 244 "Company's Blacks," and 4 were of 141 hired from Brazilians. It was suggested that the disproportion arose from good living after poor diet suddenly changed; and yet many have testified that the negroes improve in flesh, colour, and personal appearance after a few months at Morro Velho. In 1848 Dr. Birt remarks that "in England the per-centage of deaths, including the whole population, is not less than 3 per cent; ours is a little more than $2\frac{1}{2}$ per cent."† Dr. Thomas Walker, "Physician to the Forces," who in 1850 reported upon the sanitary condition of the Morro Velho blacks, found them decimated by pneumonia, a very common and treacherous malady in the Highlands of the Brazil. He regretted that he could not use more freely the lancet, from which the blacks seem instinctively to shrink, and thus sometimes they save their lives in the teeth of science.‡

From the Reports it appears that about every ten years there is abnormal mortality produced by the "nature of the climate and local situation, and by the social condition and peculiarities in the constitution of the blacks." Diseases of the brain and bowels are severe; dysentery and pleurisy carry off many victims, whilst pneumonia is sometimes epidemic, and often latent, leading to a rapid development. Of the 90 men and women in hospitals, several suffered from malignant ulcers of the extremities, aggra-

* The drainage of the Central African plateau, or raised basin, I have remarked less regular than that of the Brazil. In other points the climates remarkably resemble each other. I have often been reminded of Usagara on the Serra do Mar, and of Unyamwezi in Minas Geraes and

São Paulo.

† For the official average rate of mortality, see Appendix 1, Section A.

‡ His paper has been printed in the Twenty-first Annual Report of the Company. (London: R. Clay, Bread-street-hill.)

vated perhaps by the mundic water, which is said to cause gangrene in wounds. The loathsome "bôbas" or yaws, hardly known to northern Europe, except in marine hospitals, are here as common as on the Guinea Coast; the people dread the disease, and declare of it "nã se pode dizer 'tíve bôbas'"—"no man can say 'I have had yaws.'" What Caldeleugh calls "atôa (or chance) connections"* amongst the slaves, are energetically repressed by the Superintendent, and the officers set an example of scrupulous good conduct: yet as at "Sã Leone," so here, the majority of cases are venereal, and even children are born with *corona veneris*. But such is the negro everywhere out of his own country, and in it also where Europeans have made colonies.

What wondrous scene the future then shall view.
 The links, half human, ruling sea and strand,
 Feigned human by the philanthropic few.
 A monstrous, foul, deformed and fetid band.
 Males, bestial all, and females all untrue,
 Lust, perjury, superstition, taint the land:
 Such fortune, "Sã Leone," becomes thee well,
 Thou negro paradise, thou white man's hell! †

Women about to become mothers are taken off work and are sent to hospital in the fourth month. After confinement they are relieved from hard labour, and they work sometimes for half a year in the sewing department. Those familiar with the condition of the Lancashire "bloomers," of the Cornish women who assist in dressing the tin ores, and of the English agricultural labourers' wives generally, will own that the slave-mother is far better treated at the Morro Velho mines. The young children, tended by an elderly woman, play under a large tiled shed in the great square of the Bôa Vista Quarters. But the negro in the Brazil is an exotic, he is out of his proper ethnic centre; it is difficult to keep him alive, as the next quarter century will prove, and when young he requires every attention from the parent.‡

* A word often misleading strangers in the Brazil, and appearing as the name of plants and other things. It is properly *à tóa*, the literal meaning "by tugging," or "towing;" the secondary signification is "Sem governo," uselessly, inconsiderately, and the popular meaning is bad, worthless, unimportant, *uma cousa à tóa*, thus converting it into an adjective.

† Not in Camoens, Canto V. 12. Like my friend the author of "Wanderings in West Africa," I have adopted the nigger form "Sã Leone," which is merely a corruption of a word already corrupt.

‡ Nothing can be more erroneous than the assertion of St. Hil. (III. ii. 72, and other places), that in the Brazil the negro race "tend à se perfectionner." Equally abroad

The Brazilian planter who would not see the number of his slaves diminish, allows the children to be with their mothers, and the latter to be off work for two and even for three years.

One of the most interesting visits at Morro Velho is to the cotton-spinning department in the Company's store. The hands are negro girls, and mixed breeds, often free: they work by the task, and they feed and lodge themselves. They are paid at the end of each month, at the rate of 0\$300 to 0\$400 per lb. of spun yarn, and each averages 4—5 lbs. per week. The material is mostly brought from the dry regions lying west of the Diamantine district, and from the banks of the Rio das Velhas, especially Santa Quiteria, in the municipality of Cruvello. The plant, which the Indians called "Aminüü," is the black-seeded, preferred in the old Brazil to the herbaceous. The lint is more easily separated by the simple bow of Hindostan, still used, whilst the fibre is believed to be stronger and more easily spun. An arroba (32 lbs.) of seed-cotton, worth 0\$100 per lb., yields after whipping 7—8 lb. of clean fibre, whose value rises to 0\$400 and 0\$500. During the last three years prices have been raised by increased demand at Rio de Janeiro; and, as the following pages will prove, the Brazil, and especially the Province of Minas, with her parent São Paulo, has, in her cotton lands, a mine of wealth which wants only machinery and lines of communication.

The seed is removed from the lint by a charkha, a mere toy, two little cylinders of smooth hard wood, about 1 foot long, of broom-stick thickness, set close together in a diminutive frame, and worked contrary wise by winches.* These are turned by two children, whilst a third presents the cotton, which passes between the rollers and comes out free. I afterwards saw an improvement upon this rude and venerable hand-machine: a water-wheel worked by means of pulleys and bands, eight sets of cylinders, each served by a slave, who cleaned 96 lbs. per diem. By adding a hopper to supply the cotton, a whipper to remove, and a fan to

was the learned and eccentric Dr. Knox. "From Santo Domingo he (the negro) drove out the Celt; from Jamaica he will expel the Saxon; and the expulsion of the Lusitanian from Brazil is only an affair of time." As in the United States, emancipation will annihilate the African race, which, with very rare exceptions, is viable as a slave recruited from home, not as a freeman in lands occupied by higher blood. It is

impossible not to notice the curious self-contradiction of Dr. Knox, who threatened with extinction the Anglo-American (not to mention others), because removed from his proper habitat, and yet who promised a mighty and productive future to the African under the same circumstances.

* There are many varieties of the wheel, many have only one winch.

transport the lint, one pair of hands might do the work of eight.

In nothing does nationality display her differences and peculiarities more notably than in cotton-cleaning machinery. The Brazilian and the Hindu chiefly rely upon Nature's instruments, and the best of all instruments—the fingers. The English invent good, dear, solid articles, safe enough, but tedious, tardy unto impossibility—

And the trail of the slow worm is over them all.

The North-American contrivances, the popular saw-gins for instance, are cheap, poor, easy to manage, and work at railway speed, but they tear the fibre to pieces. I believe that the old cylinder of the Brazil would with certain improvements become superior to any yet invented.

Captain Joaquim Felizardo Ribeiro, whose mill is about three miles distant, contracts to supply at a fixed sum the Company with gunpowder, of which £200 worth per mensem is consumed in blasting. He finds the hard-wood charcoal; he receives from England, at cost prices, the best sulphur and saltpetre; and he prepares the article in the proportions required by the establishment. Mr. Gray, an Englishman, makes the safety-fuse, which is always charged with gunpowder from home. The other fuses are worked by the black spinsters. Blasting-oil or nitro-glycerine has not yet, I believe, been tried.

The Company's store also contains the theatre, which is always fully attended, and which deserves well of the moralist as a civilizing agent—in fact, what Salt Lake City holds it to be. Mr. Wood, assistant *pro tem.* in the Reduction Office, and Mr. White, jun., were the stars at the time of our visit. The "house" is a long room with two lines of benches; on the left are the officers; to the right sit the mechanics and miners, with their wives, and fronted by their children. The stage is a boarded platform, opposite a raised orchestra at the other end; we had all kinds of fun,—nigger minstrels, the Nerves, and every latest comic song. After hearing the shouts of laughter which greeted every screaming farce, the author would have modified his old saw—

Anglica gens,
Optima flens,
Pessima ridens.

Such, reader, is life at Morro Velho, in the heart of the Brazil. We intended, I have said, to pass a week there; such however was the cordiality with which our countrymen received us, and such their kindness and hospitality, that we could not tear ourselves away till the month was ended.

CHAPTER XXV.

DOWN THE MINE.

At noon-day here
'Tis twilight, and at sunset blackest night.

MR. GORDON made every arrangement for our safe descent. Mrs. Gordon also, who had never before ventured under grass, kindly consented to accompany my wife. It was settled that Mr. L'pool and I should descend first, and receive the rest at the bottom of the pit. Mr. James Estlick, the captain in charge of the mine,* saw us properly clad in heavy boots for protecting the ankles, and in stiff leather hats to guard the head from falling stones, and to carry a "dip" stuck on by a lump of clay; the rest of the toilette was "old clothes," for the wearing out of which my Hibernian cousin defined Rome to be a capital place. A small crowd of surface workmen accompanied us to the mouth of Walker's inclined plane, a hot and unpleasant hole, leading to the Cachoeira Mine. The negret Chico gave one glance at the deep dark pit, wrung his hands, and fled the Tophet, crying that nothing in the wide, wide world would make him enter such an Inferno. He had lately been taught that he is a responsible being, with an "immortal soul," and he was beginning to believe it in a rough theoretical way: this certainly did not look like a place where the good niggers go.

Mr. John Whittaker, who reached Morro Velho just in time to be of the party, and the Superintendent, thought it *infra dig.* to descend otherwise than by the footway.† Yet even Geordy Stephenson did not always despise the "corve." The miners run up and down like cats, much preferring the ladder, because here they depend upon themselves, not on the chain; the stranger

* The Superintendent prefers not to have a head mining captain, and in this I think he is right. There are four captains, who change every week in taking the day

and night work.

† Meaning the ladders for ingress and egress, including the space around them.

will take some four hours, and next day or two his knees will remind him of the feat. I preferred, despite all the risks spoken of, the big iron bucket which weighs nearly a ton, and carries some nineteen cwts. of ore; the Cornishmen call it a "kibble," the Brazilians, a "caçamba."* It hangs to a carriage, running on a shaft of iron-shod wood, descending at an angle of about 46°, and it is lowered and raised by a haul-wheel worked by water-power. There are two breaks, Cornicè "drags," in the traction machinery for arresting progress suddenly, and should the chain snap, there is a catch, to which, however, one must not trust. The big tub careers helplessly forwards and downwards, "with a surge," till the strong rivets give way, and the affair becomes a ruin; the fate of a man dashed into this apparently fathomless abyss of darkness may be imagined. When the kibble has reached the hauling station where the shaft ends, self-acting springs detach it from its carriage; it then descends vertically and is filled with stone.

Accidents have been exceptionally rare in the Great Mine; few have required the epitaph—

Here lies the body of Jan Trenow,
Killed underground, we can't say how.

And there has been no loss of life between July 1, 1865, and November, 1867. The contingencies have arisen chiefly from the breaking of dishonestly made chains, which should last two years, but which have often struck work after six months. The links fail owing to defective welding of the scarf, the mere skin of outer surface soon wears through, and imminent danger is the result. At first wire-ropes were tried and failed; improved manufacture and different conditions of application have now rendered them safe. Under any average circumstances, however, a trip in the "kibble" is not more risky than to descend any one of the four terrible inclined planes, those glissades of death, which make the stranger "squirm" on the Santos and São Paulo Railway.

Presently the bucket was suspended over the abyss, and we found in it a rough wooden seat, comfortable enough. We were

* This must not be confounded with the Angolan word "Caçimba," meaning a pit for water, sunk generally in the bed of a

nullah, very common on the lower São Francisco.

advised by the pitmen not to look downwards, as the glimmer of sparks and light-points moving about in the mighty obscure below, causes giddiness and sea-sickness. We did look down, however, and none of us suffered from the trial. More useful advice was to keep head and hands well within the bucket, especially when passing the up-going tub. We tipped and tilted half over only once against a kibble way drum, placed to fend off the "Caçamba." Those who followed us had three such collisions, which made them catch at the chains, and describe them as "moments of fearful suspense;" they had been lowered in a kibble with a superfluity of chain. A stout young fellow, Zachariah Williams, one of the "lads below," kept within hail of us, descending the footway as fast as we rattled down in our novel vehicle.

I could not but marvel at the mighty timbering* which met the eye as it dilated in the darkness visible—timber in brackets, timber in hitches or holes; timber in the footways and sollars or resting places; and timber in the stulls, platforms for depositing ore, for strengthening the wall, and for defending the workmen. All was of the best and hardest wood, and it is hardly conceivable how in such damp air it could have caught fire. The immunity of Brazilian cities and towns results mostly from the use of timber more like heart-of-oak than our deal-tinder. The sight suggested a vast underground forest, but

* Woods of the first quality are—

Aroeira	Canella Vermelha	Landim
Angelim	Cangerana	Moreira
Brauna, Parda	Folha de Bolo	Massaranduba
Do. Preta	Gonçalo Alves	Paroba Vermelha
Balsamo	Ipé	Liquorana
Capebano	Jacarandá, Tãa	Tinta
Cycupira (Siecupira)	Do. Cabiuna	Tamboril
Cedro	Jatobá	

Amongst inferior growths are reckoned—

Angico	Canella Amarella	Goiabeira
Angá	Do. Preta	Mangue
Bagre	Do. Sassafras	Oleo Vermelho
Cabui	Do. Loura	Pinheiro Vermelho
Canafistula	Cycupiruna	Paroba Branca
Cochoá	Coita (Açoita) Cavallo	Vinhatico
Catoá	Camboatá	

The cost of 5 cubic feet of first quality is 2\$000; of second quality, 2\$000
 „ 50 „ „ 60\$000 „ 45\$000
 „ 100 „ „ 190\$000
 „ 70 „ „ — „ 70\$000

a forest torn up by terrible floods, and dashed about by cataracts in all directions, with the wildest confusion. The mighty maze, it need hardly be said, was not without a plan, very palpable at the second look. Terrible was the thrust; in places the vastest trunks of the Brazilian forest giants have been cloven or crushed. These are at once removed and replaced by others. The work is never allowed to get into arrears; everything must be kept tidy as well as safe, and the masonry is as carefully watched as the timber. After a short delay one point becomes weak, another dangerous, the water comes in, the mine works flat, and presently something gives way.

The sight explains why those who are jealous of the mine threaten it with exhaustion of wood for fuel and propping. Of this, however, there is no present danger, the whole Paraopéba district is still untapped, and the Rio das Velhas will yield large supplies for many years. We shall pass charcoal on the way to Sabará, and quantities are to be found at Macácos to the south of the Morro Velho estate.

In this part of the Brazil, young wood, and especially that of small girth, does not last, if cut during the rainy season. The people here fell it from May to August, preferring June, and avoiding, as they say, "months which have no R's," as we shun oysters in months which have them. The rationale is easily understood; in the cold season, when the "dries" have well set in, the sap leaves the bole and returns to the ground. It is not so easy to account for the general belief that wood cut during the moon's wane is not liable to the worm;* even the Indians will not fell trees for their canoes when the satellite is full. In England, I believe, our ancestors who did not wish to be bald, objected to their hair being cut while the moon was waxing. Lunar action, despite northern scepticism, is everywhere in the Tropics a matter of faith. We may treat it like mesmerism, as the effect of latent electricity, or blind sympathy of some unknown force, or, best of all, with De Quincy's *'εποχη*, or suspended judgment.

* "He que cumpre nos minguantes serem derrubadas." Silva, Lisboa Annaes, iii. 153. I am pleased to see that the question of lunar influence has of late years been considered unsettled. Dr. Winslow adduces evidence to prove that as regards its effect upon the insane, much

may be said on both sides. With respect to its pernicious action upon sleepers, we are now told that the "moon's rays contain polarised light, which carbonises, and is therefore antagonistic to the sun's rays, which oxygenate."

The timbering does honour to Mr. John Jackson, the captain in charge. It is worked mostly by contract, at so much per log. The men who undertake the job receive no pay, but are supplied with candles, and each pair has a negro gang of 30—40 head. If they "tip" the slaves it is on the principle—or want of it—which makes us tip the railway guard. And here a white man striking a black is very properly fined.

We made an easy descent through this timber avenue of monstrous grandeur, and a bit of lighted tow tied to the bucket-chain showed us all its features. There was no "rattle his bones over the stones," and the trip lasted fifteen minutes. At the bottom the kibble stood still, began to roll like a boat, and descended perpendicularly till we were received by Mr. Andrew, the stopes captain, now on duty. To-night Mr. Williams will relieve him. Our eyes being here unaccustomed to the new gloom, we applied them to the unwatering system, as we stood in the "sump," which to collect the drainage was a little sunk below the deepest workings. There are two pumps, one in the Cachoeira, the other in Bahú, each with five sets of plungers, worked by water power. The rods of the Bahú are 649 feet 2 inches from the centre of the crank nipple pin to the middle of the pin at the surface bob. A hose from the stope-bottom is filled by a "lift" or suction-pump, which feeds a cistern above; higher up the process is carried on by plunger-bolts, until the water is conveyed through the sump-shaft to the surface. This is a decided improvement upon the Brazilian "bomba" and "macácu," which perpetuates the old "hund" or "hundslauf" of the Freyberg miners.

Presently Mrs. Gordon and my wife, habited in brown-holland trowsers, belted blouses, and miner's caps, came down delighted with the "kibble" travelling. The hands did everything to banish alarm; showed lights at the stulls; spoke and cheered as they passed, and were attentive as if in a drawing-room. They were received with friendly welcomes to the mines, and loud "vivas." We were then joined by Messrs. Gordon and Whittaker, who will suffer from what the Peruvian miners call "Macolca."* When our eyesight had become somewhat feline, we threw a general glance around. Once more the enormous timbering under the

* A painful soreness of the muscles, particularly in the fore part of the thigh.

bar, or to the east of the shaft, called to it everyone's attention.

The mine was utterly new to me, and most unlike the dirty labyrinths of low drifts and stifling galleries, down which I have often crawled like one of the reptilia or the quadrumana. The vertical height, 1134 feet, and the 108 feet of breadth, unparalleled in the annals of mining, suggested a cavern, a huge stone quarry, a mammoth cave raised from the horizontal to the perpendicular. Looking eastward, where the lode is sloped and bends up a trifle northwards, before us arises a black ascent, besprinkled with lights, glittering like glow-worms upon a tall embankment; some scattered over the lower levels, some fixed higher up, with their lamps of Ricinus* oil dimmed by distance. Candle-burning, the usual test, detected nothing abnormal in the atmosphere; the air was free, the ventilation was excellent, and sulphuretted hydrogen can be found only after blasting. Right pleasant to the shareholder's ear would have been the merry song of the stope-cutter and the boisterous mirth of the borer. Presently they were silenced, the Superintendent made a short speech, and proposed the visitors; this was received with loud vivas and cheers that sounded strange in the abyss, in the bowels of the earth. Of course our feet were "wiped," and physically speaking they wanted wiping. The floor was wet, the mud was slippery, and locomotion seemed like an ascent of the Pyramids, although the ground was pretty level considering.

Then turning to the west we ascended a stope or two leading from the Cachoeira to the Bahú Mine; here was a trickling streamlet which in a few days would have drowned out the old men.† The water is slightly ferruginous, perhaps from contact with the iron tools; it does not, however, much oxydise or corrode metals. Testing its temperature at various successive horizons, Mr. Gordon found the water at the bottom of the mine colder than that on the surface. He carefully rejected the elements of error arising from animal temperature, lights, fires, and the higher temperature within the sumps. Many observations have induced him to question the existence of that inexplicable and indeed inconceivable caloric formerly located by M. Cordier and others

* In this mine all the works under the surface are lighted with Ricinus oil.

† "Os Antigos," as they call those who

preceded the grandfathers or the great-grandfathers of the present race.

at the centre of the earth.* It is always a pleasure to see the old, the highly respectable, the "time-honoured truths" of our childhood shattered and cast to the winds. It is satisfactory to learn that we do not know everything about the solar parallax; and that we have even something to explore about the moon. It is a treat to unlearn that, despite the teachings of Artesian wells and of volcanoes, of earthquakes and of thermal springs, we are inhabiting a kind of mundane egg-shell, a solid crust, an orange skin of badly conducting matter, a bomb stuffed with impossible contents. Mr. Glaisher's adventurous balloon ascents have severely damaged Humboldt's ratio of thermal decrement in elevation. Let us hope that Mr. Gordon may unmask that pretentious caloric, lend aid to the solid rocky skeleton theory, and thus light up another dark place for the rational eye.†

As we went forwards the roof of the Cachoeira, especially about the sump and at the middle section, seemed to impend considerably, with protuberances which excited astonishment. Of late, part of the northern hanging wall has been somewhat baulk and unsound, whilst much killas has appeared in the southern side; thus the lode has somewhat contracted and diminished. Yet the inherent strength of the roof is judged to need little artificial support, and we were shown the remnant of the bar or tongue of killas slate which separated the two great mines, and which was long left as a prop. For the future the capel and other valueless matter will be left in the "Cachoeira," thus avoiding the trouble

* The gradual increment of heat is supposed greatly to vary according to the nature of the rock. The difference in fact has been stated to be as much as 12 to 35 metres per 1° (Cent.). We may assume the average of 1° Fahr. = $\frac{5}{9}$ Centigrade at 70 feet—54 feet (Ansted), to 90 feet (Herschel). A mile of depth usually represents 117° (F.) = 65° C.; at two miles water boils, at 2700 metres it becomes steam, at 3000 metres sulphur would be fused, at 6500 metres lead would be melted, at 9 miles all substances are red-hot, and at 30—40 miles all matter is in fusion or incandescence. What then can there be 300—3000 miles below the surface?

According to Lt. Moraes (p. 42), the surface temperature of Morro Velho is 75° (F.), and at the bottom 81° (F.), and he remarks that the general opinion represents it to be very hot. He makes the mean annual temperature of Morro Velho

20°·65 (Cent.), and this gives—
Temp. 7 metres below surface. 20°·65 (C.)
„ at bottom of mine . . . 27°·22 (C.)

Difference . . . 6°·57 (C.)
The depth being then 264 ^m ·6 (i.e., 271 ^m —6 or 7) gives 1° (C.) to 40 ^m ·27 of depth.

† Mr. Gordon is, I understand, about to publish the results of his labours. Meanwhile, he kindly gave me leave to use an extract, which will be found in Appendix 1 (Section B). The figures show great irregularity both in the water and in the air. Dr. Julius Schwarcz, the Hungarian anthropologist, has also, I believe, attacked "internal heat," and has supplanted the doctrine of a central fire by an entirely new argument. (Anthrop. Review, July—October, 1867, p. 372.) The skeleton theory, with pores and cavities containing fiery fluid, is, I believe, gaining ground.

and expense of raising it, and utilizing it in parts of the excavation, where hitherto for safety much timber has been expended.

And now looking west, the huge Palace of Darkness, dim in long perspective, wears a tremendous aspect; above us there seemed to be a sky without an atmosphere. The walls were either black as the grave or reflected slender rays of light glancing from the polished watery surface, or were broken into monstrous projections, half-revealing and half-concealing the cavernous gloomy recesses. Despite the lamps, the night pressed upon us, as it were, with a weight, and the only measure of distance was a spark here and there, glimmering like a single star. Distinctly Dantesque was the gulf between the huge mountain sides, apparently threatening every moment to fall. Everything, even the accents of a familiar voice, seemed changed, the ear was struck by the sharp click and dull thud of the hammer upon the boring iron, and this upon the stone; each blow invariably struck so as to keep time with the wild chaunt of the borer. The other definite sounds, curiously complicated by an echo, which seemed to be within reach, were the slush of water on the subterranean path, the rattling of the gold stone thrown into the kibbles, and the crash of chain and bucket. Through this *Inferno* gnomes and kobolds glided about in ghostly fashion, half-naked figures muffled by the mist. Here dark bodies, gleaming with beaded heat-drops, hung by chains in what seemed frightful positions; there they swung like Leotard from place to place; there they swarmed up loose ropes like the Troglodytes; there they moved over scaffolds, which, even to look up at, would make a nervous temperament dizzy. This one view amply repaid us. It was a place—

Where thoughts were many, and where words were few:

but the effect will remain upon the mental retina as long as our brains do their duty.

At the end of two hours we left this cathedral'd cavern of thick-ribbed gold, and we were safely got like ore to grass.

CHAPTER XXVI.

THE BIRTH OF THE BABE.

. longa
Ambages, sed summa sequar fastigia rerum.

WE have just seen the stone sent up by the kibble fillers. The whole process between the lode and the ingot will now be under the charge of the Reduction Officer, Mr. Dietsch, whose department employs some 550 hands. We will accompany that "Good Lord deliver us," and witness the birth of the babe.

The embryo is placed in the tram-waggons connecting the mines with the spalling-floors. The latter are four in number, long airy sheds, completely guarded from rain and sea. Here begins the first process of mechanical pulverization. To each floor is allotted a feitor or overseer, and under him the sledgers break the larger pieces to the size of a man's fist. The women, who are four to one man, then reduce it to the size of moderate macadam, about $1\frac{1}{2}$ inch square, small enough to pass through the hoppers feeding the stamp coffer. Their hammers are long-handled, with lozenge-shaped steel heads, weighing $1\frac{1}{2}$ lb., and a first-class woman breaks a ton and a-half a day. They easily learn to "pick," to separate the rich from the poor ore: the latter has no metallic lustre, no iridescence. An over-abundance of slate and quartz at times causes delay, which is employed in rest. Each spaller must fill up one or two wooden funnels, containing 16 cubic feet, and during the six days a supply for the seventh is accumulated. The men labour only whilst it is light; the industrious can finish their tasks on Friday evening, and thus they have the Saturday for themselves. Women and fresh hands are spared, and they can usually "knock off," if they please, at 2 P.M. They suffer from the stone dust, but this could be easily remedied with fans.

At first sight 350 hands engaged in spalling seems a sad waste of power. But it is not easy to improve upon the system, which has lasted since 1767. The roads, it has been shown, are unfit to bear heavy machinery. The use of steam has been rejected, water being by no means plentiful. "Bagg's steam spalling hammer" was tried, and failed. Now the Superintendent is about to set up another labour-saving contrivance, "Blake's stone crushing machine,"* of which we saw a portion in the square, Barbacena.

For further pulverization the spalled stone must be stamped.† The amount treated at head-quarters is 200—210 tons per diem, more in the rains, less in the dry season. Half an ounce of gold per ton pays, and the present rate, nearly one ounce per ton, is highly remunerative. Also, I have said, to clear off expenses (400*l.*) 300 tons of stuff must every day be raised from the mine, and to give dividends, 400. This gives a fair view of the work done.

The poor ore, as we have seen, goes by a tramway to the Praia. The rich spalled stuff is thrown into a row of wooden funnels, which, opening below, discharge into tram-waggons working in a tunnel. These carts are shunted up to the Stamp Passes, and are tipped over into enclosed slides of wood, each a general reservoir, which, assisted by a central "lifter," feeds all its stamps for a day and a fraction. The Passes are regulated by hoppers, with weighted arms acting as springs. The stamps, divided into sections of three heads each, are worked by the simple old water-wheel‡ and horizontal axle, whose cogs or cams raise, 60 to 78 times per minute, upright shafts ranged in row like capstan bars, or the pestles of an African housewife. Each

* The Brazilians call it "Comedor," or stone-eater, on account of its moveable limb or jaw.

† The ore stamped between March and August, 1866, amounted to 29,037 tons.

During the 6 preceding months, 29,542 tons.

During the 6 months ending August, 1865, 30,268 tons.

In June, 1867, some 6020 tons were stamped.

‡ The wheels vary from 35 to 50 feet in diameter. There are 10 at head-quarters, viz., 6 for the stamps, 1 for the triturators, and 1 for amalgamation. The stamps are in batteries of 3 each, and 4 at the

Praia. At head-quarters there are 6 sets (or 135 heads), named the Addison, Herring, Powles, Lyon, Cotesworth, and Samsannah. At the Praia are 2 batteries (56 heads). Thus the total is 191 heads, distributed into 61 batteries.

The Praia has 2 large "pressed wheels," upon whose centre the water impinges. The larger, 32 feet in diameter, and 9 feet 1 inch wide, drives the Hocking stamps, 32 heads and 2 triturators; the smaller, 26 feet \times 7 feet 8 inches, works the Illingsworth, of 24 heads and 4 arrastres. The Praia stamps are not self-feeding. manual labour does the hopper's work.

“lifter” has a “head” of country iron weighing when new five to six arrobas; the rest of the instrument gives a total weight of 234—288 lbs., and each head costs 26\$000 to 27\$000. After three months or so they become much worn, and are transferred, like the short breeches of the elder brother, to the Cadet at the Praia. The Superintendent has imported steel heads from England; each one valued at 106\$300, and not one lasted out the common “chapas de ferro” of Minas iron.

The “coffer” or rectangular trough in which the stamps work is a wooden box lined with iron to receive a blow of 380 lbs.; it is 26 to 30 inches long by 1 foot to 18 inches wide. All are protected fore and aft by copper grates, with 6000 to 10,000 holes to the square inch, and raised 20 to 23 inches above the coffer, to prevent the fine powder passing away: from a short distance you see the grey dust and water surging up around the stamp head. A horizontal trough drops through a hole above the grating sufficient water to keep the charge wet in each battery; once a week the grates, which are liable to clogging, must be removed, and the gold sand washed out. The stamp labourers are divided into two gangs, working day and night by alternate weeks.

This system of stamping loses free gold, which, when finely laminated, is too light to sink, and floats off with the slimes. Mr. Thos. Treloar, whose experience at Cocaes, Gongo Soco, and other places, entitles his opinion to respect, has declared that 7—8 per cent. of this thin plate gold disappears. Evidently the sole remedy is to re-treat till deposition takes place.

Now commences the concentration process. The coffer-supplying trough also gives water enough to wash the stamped and pulverized matter down the strakes. These substitutes for the earth trenches and “canôas,” are wooden planes 26 feet long, divided by ribs into shallow compartments, 3 feet long by 14 inches wide, with an angle of inclination of 1 inch per foot. Each compartment is floored with an oblong of partially tanned bullock’s skin, or blanket when hide fails: it takes the place of the old Brazilian grass sod. The tannery is near to and north of the Ribeirão Bridge.

The principle is that the heavy but invisible gold in the slaty sand adheres to the skin, whilst the lighter earthy particles are washed away. The hair is against the course of the water, but the little transverse lines of wrinkle, which time and use trace upon the

surface, are of more importance. Each ton of ore passing over the skins, leaves from one-third to one-half of a cubic foot of rich sand, and each cubic foot produces on an average 2 ounces of gold.

For the most part women attend the strakes and do the light work of watching the machinery, trimming the skins, and regulating the water; if this be neglected, the sand becomes clogged, and the gold floats over. The skins are divided into three upper or head skins, two middles, and two tails. The former, being the richest, are washed every two hours in one of the seven head sand boxes, whose keys are kept by the feitors. The large chest is divided into three compartments: the hides are first washed in the two side chambers; they are then drawn through the "swim-box" or middle space; and finally they are restored to the strakes. The middle and tail skins are washed every four hours, and the latter must be re-straked * before they are rich enough to be amalgamated with the head-skins.

Thus the finer sand is ready for amalgamation. But the coarser stuff that passes over the strake-skins still contains some 30 per cent. of gold. It is carried down by the launders to an ingenious self-acting apparatus, called a separator or classifier, adopted about four years ago, and much preferred to the old "concentrating ties." It is a wooden trough 12 feet long by 2½ wide, with four funnels perforated below: in these the stuff to be washed is gradually deposited; the heaviest particles settle in the first, where there is most watershed; the lightest in the last, where there is least, and the residue of insipid slime runs through an open trapeze-shaped trough into the common drain, the Ribeirão.

The four tunnels discharge their contents into grinding circles of wood, stone paved, and about 8 feet in diameter. These are the "arrastres" or triturators, † protected by their sheds. A water-wheel works two horizontal arms, which drag by strong

* They are concentrated in "tailing-boxes," large troughs filled with water; these, when the bottoms are opened, wash the sands down the hides once more. The boxes are in pairs, one being closed for washing the hides whilst the other discharges the sand.

† Drag stones, from "arrastrar," to draw. In Mexico the rude contrivance was used for amalgamation, here it serves

only to triturate. There are three sets, the Routh, which receive the washings of the Addison and Herring stamps; this is a small building to the south-west of the main spalling floor. There are also the saw-mill arrastres in a lower detached building; they re-work the sand only when not employed in plank-cutting. The third are the amalgamation arrastres, attached to the amalgamation wheel.

chains four stones, each weighing a ton: the lode-stone is preferred for this purpose, as quartz does not grind well. After a thorough trituration the sand passes over the arrastres-strakes, is collected into tailing boxes, and is then prepared for the Amalgamation House.

But even after this second process it was found necessary further to reduce the refuse containing disseminated gold: this till 1855 was thrown into the stream: in 1856 the "Praia Works" were begun, and in 1858 they were ready for use. A dam was thrown across the Ribeirão to give a fall of water. The Arrastres sand was run along the right bank in a flume 500 feet long, 1 foot wide, and 9 inches deep. It was then taken up by a leat passing through a tunnel in the hill upon which stands Mr. Smyth's bungalow, and finally it is carried by launders to the lower works. Here it falls in a series of concentrating ties that separate the coarse from the fine stuff, and from 160 to 170 cubic feet of sand-water are delivered per minute. The sand is now re-stamped with a harder substance to assist the grinding. Formerly Cascalho-gravel—which contains quartz and iron—sand and alluvial deposits from the Ribeirão, were employed. Now they use quartz and killas in pieces about 2 inches long, and they find the unpyritic quartz the best.

At the main works the rich "head sand," which we have seen partially disentangled from the stone matrix, enters upon another phase. It is carefully kept moist, and defended from the atmosphere in wash tanks under water; thus the flouring and powdering of the mercury are prevented. It is carried down from the boxes to the Amalgamation House in wooden bowls: the carriers are usually about twenty, with a reinforcement on Mondays. This is wholesome work in the open air; but in the further process the youngest and stoutest hands are used, as "washing" doubtless affects the health. Inclined planes for conveying the sand and other economical processes have been proposed; the Superintendent, however, sensibly cares most to show a good balance-sheet, and has little inducement to try expensive and precarious experiments.

The head sand is first deposited for measurement in boxes, each holding 16 cubic feet. Of these there are 16, and each connects by a funnel with its Freyberg or amalgamating barrel,

whose contents are the same.* The sand is watered, and a small wheel causes the barrel to revolve for half an hour at the rate of 13—14 revolutions per minute. The “Freyberg” is then opened: if the paste be too wet the mercury will not mix well with the sand; the other extreme will divide the quicksilver too finely. When the mass is of proper consistency, 50—60 lbs. of mercury † are added to each barrel, which is expected to contain 32 ounces of gold.

Formerly the barrel process was continued 48 hours before the disengaged particles of concentrated sand were brought into complete contact with the mercury. Now the average is from 24 to 26 hours: the shorter time is in the hotter weather, and the richest gold requires the most work. After 24 hours a sample from the barrel is washed in the *batêa* to see if any free gold remains. In Brazilian mines the first “*bateada*” is always given for good luck to strangers.

When amalgamated, the muddy and partially liquid mixture is discharged from the barrel into the receiving trough placed immediately below, and here it sinks, freeing itself from the water. The object is now gradually to separate the mercury and amalgam from the mineral residue, the sand and the other impurities. The mass is washed down into a “*lavadero*” or “*saxe*,” a machine composed of 10 troughs, each 16 inches long and 17 deep, reciprocating and working in wheels with a to-and-fro horizontal motion. Each compartment is charged with a bed of mercury, from 340 to 460 lbs., forming a stratum about 1 inch in depth. Two or three inches above the quicksilver is a passage through which the residuary sand and water are expelled by the movement. The free mercury rises and may be drawn off for use, whilst the amalgam sinks by its greater specific weight. Each compartment will separate in 8 hours its 16 cubic feet. ‡

The fourth operation is “cleaning up,” or separating the gold

* Some six different modes—iron pans, dolly-tubs, &c., have been tried, but the revolving barrel has finally been preferred; the others gave inferior results, with a greater loss of mercury.

† In 1846, the monthly loss of quicksilver was 35—70 lbs. In 1866, the consumption was 1091 lbs., or 39 ozs. per cubic foot of sand amalgamated. In May, 1867, 5200 lbs. have been used in amalgam, giving a loss of 95 lbs., or 0.41 lbs. per

cubic foot. The price of quicksilver at Morro Velho is only 1\$500 per lb., and it is cheaper to throw away the sick stuff than to treat it with sodium.

‡ The sand washed out of the last *saxe* compartment runs over strakes, and here the hides arrest stray portions of amalgam and “*liss*,” the latter is composed of various oxides and pearlish mercury, finely divided by the sulphate of the iron peroxide and the free sulphuric acid.

from the amalgam: this is done three times each month after "divisions," longer or shorter periods of 10 to 12 days. The upper part of the saxe is removed, boiling water is poured into each compartment, and thus the metal is more easily separated. Then the surface of the amalgam is covered with a stratum of coarse sand, from $\frac{1}{4}$ to $\frac{1}{2}$ an inch thick. After the hot water has been thrown out the sand is easily skimmed off, and the quicksilver becomes clean. The amalgam is then by strong twisting filtered through canvas cones of the stoutest Russian linen like coffee strainers, with stout iron rings round the mouths: the bags are subsequently treated to recover a little gold. The liquid quicksilver is thus forced out into a vessel ready prepared: the metal is considered pure, but minute inspection shows finely diffused gold. That which remains behind is still impure with mineral sand. Portions of the paste weighing 14—15 lbs. are rubbed in Wedgewood mortars with boiling water, which softens the mercurial alloy, and with native soap, which removes the impurities. Mercury is then added, the fluid amalgam is poured from pan to pan, both being of iron heated, and the surface dross or scum thus thrown up to the surface is removed. Boiling water and soap are reapplied till impurities disappear, and the metal looks bright with a silvery lustre.

Now balls of the pasty amalgam, weighing 15 ounces to 2 lbs., are kneaded into the shape of eggs, and are squeezed, wrung, and beaten in chamois leather till no free metal appears. The residue is a solid containing 42 per cent. of argentiferous gold* and 57—58 per cent. of mercury, with some impure matter, chiefly mineral sand. After this the balls, carefully weighed, are re-torted in the usual manner; the operation is completed after six or seven hours.

But the gold is still impure with iron and arsenic, nor has it the proper shape. It calls for the fifth form of treatment—the metallurgical.

The precious ore is now melted in crucibles of refractory clay made by M. Payen of Paris. Each is charged with $12\frac{1}{2}$ lbs. of alloy, and $\frac{1}{4}$ lb. of flux, borax, and bicarbonate of soda in equal proportions. It is then placed in an air furnace † heated by

* A few years ago the proportion of the precious metal was only 37 to 62—63.

† In 1862 a small laboratory and an assay office were built near the Amalgamation House. They contain two wind-furnaces

(furnos altos) of good solidity, lined with cast-iron plates, two cupel furnaces of masonry, one dry bath, one gold melting room, and one weighing-room, separate.

charcoal, and a chimney or stack 26 feet high secures the degrees of temperature required. Complete fusion is effected in about 45 minutes. The crucible* is taken up with tongs, and the golden fluid is poured like a bar of soap into an oblong mould of cast iron previously warmed to expel moisture, and slightly greased.

Thus the babe is born and cradled.

It is born, however, with a caul. The skin is black with the slag of the fused salts, which have dissolved the impure matter of the golden charge. This surface is knocked off with the hammer, and the bar is found to have lost, from the crucible and other causes, from 6 to 8 oitavas, or $\frac{1}{2}$ per cent. of its original weight. The ingots are cast three times per month, and 14 per diem is fair work. Each weighs 1600 oitavas, and assuming this at 7s. per oitava, the value will be 560*l.*†

And now the birth must be sent home. After each second month the bars are taken to the Company's office, and are there weighed by the Reduction officer in the presence of the Superintendent. They are then screwed down in small solid boxes of the fine hard yellow wood "vinhatico," each case containing three bars, and sealed with the Company's seal. The small packages are stowed away in as many mail-trunks, and are committed to the "Gold Troop." This is commanded by Mr. George Morgan, Jun., an experienced traveller, for whose kindness to my wife, on her return, I am most grateful. She would not have hesitated to travel accompanied only by unarmed blacks: there are few places

* After 3—4 meltings the crucibles are worn out, they are then crushed, and the gold in the little cracks of the material, and the fine globules on the surface of the porous clay, are recovered.

† The dry way is used in the carefully conducted assays necessary to discover the "loss in process," and the value of the ore treated during the divisions. The first step is to "sample," a delicate and important matter, unjustifiably neglected by the unscientific Cornish miner. Three times a day, with intervals of four hours, 20 cubic inches of stuff, taken from each coffer, are placed in the barrels till the mineral particles deposit themselves. The "separations," or specimens of the different lodes, are inspected at the assay office after every division. The sample is dried in a sand-

bath, and a charge of two ozs. is weighed off. It then receives the flux (fundente), 500 grs. of red oxide of lead, two ozs. bicarbonate of soda, one oz. borax, one oz. common salt, and a little charcoal powder. Fusion is effected in an earthen crucible, with a small iron rod, that causes the lead to remain ductile, and the arsenic to separate from the sulphur, and collect at the top. The operation is always checked by a second sample. When its contents have been liquified in the fusion furnace, they are poured into an iron mould, where the scoriæ of the flux and the metalloids and minerals, arsenic, sulphur, iron, aluminium, silicium, and others, separate themselves. Finally, the cupel (cadinha) and muffle are used, and the button (culote) of argentiferous gold is the sample required.

where this can be done with perfect safety, even in civilized America.

Mr. Morgan is armed, and is escorted by two Tropeiro-guards, who have permission to carry pistols; the rest are drivers, with no weapons but their knives. Nothing could be easier than to scatter the little escort; a few shots from any hill-side would throw all the mules into confusion, and much treasure might be taken without bloodshed. That no such attempt has ever been made to plunder speaks very highly of Mineiro honesty, especially in a country where the police is merely nominal. It is related that, many years ago, a highwayman was captured after a short, successful career of banditism; he was sent to Rio de Janeiro, ostensibly for judgment, but he was accidentally shot on the road. His death produced an excellent effect; had he reached Rio he would have escaped upon the same principle that causes Big Elk or Spotted Dog, after scalping a few dozen whites, to be fêted and flunkeyed at Washington.

Thus housed, the babe embarks for England. It had better far have remained in the Brazil, where such small population is much wanted.

CHAPTER XXVII.

THE WHITE MINER AND THE BROWN MINER.

"No flourishing and prosperous community of the different races of the European family has ever existed in a lower latitude than 36°."—*Mr. Crawford, Trans. Ethno. Soc.*, vol. i., part 2, p. 364.

It may be said with truth that as a field for the white man no country equals the Brazil. In colonial days the pride of the people gave away their daughters to the Portuguese paupers, pedibus qui venerat albis, but who could prove gentility. In later times European clerks and mechanics have intermarried as a rule with the "first families." In this most democratic of empires, in this "monarchy fenced round with democratic institutions," this "republic disguised as an empire," all white men, not all free men, are equals, socially as well as politically. All are, to use the Spanish saying, "as noble gentlemen as the king, but not so rich." The aristocracy of the skin is so strong—despite the governmental apophthegm "all men are equal"—that nothing can make up for its absence.* Every "branco" is as good as his neighbour, upon the same principle that every scion of Basque-land has an equal title to "gentlemanship." This naturally, inevitably results from the presence of an inferior race and a servile caste. And thus it comes that society knows two divisions, and two only, free man and slave, or synonymously white man † and black man. Hence here, as in the United States, we observe the unnecessary insolence with which the prolétaire from Europe delights to assert his independence. I have been addressed by a runaway English seaman whom I had never seen, simply thus, "Burtin," &c., &c.

* The race in the Brazil being greatly mixed, allusions to colour in general society are considered to be bad taste. Strangers, however, will soon remark that families of

pure white blood are proud of it beyond measure.

† "Meu branco"—my white—is the civil address used by Indians and Africans.

In the great Atlantic cities of the Brazil, and these only are, as a rule, known to foreigners, there are sections of the labour market where competition flourishes, and where, thanks to the Liberal party, there is a great and increasing jealousy of strangers. Not so in the interior and in the small towns. Nowhere can an honest hardworking man get on so well with such a minimum of money or ability. The services of a useful hand, whatever be his specialty or trick, will be bid for at once, and at the highest possible value, and will always remain in demand; and it is simply his own fault if employment does not lead on to fortune, and to what we may call rank. Convinced of this fact, whenever I hear a foreigner complain that he has failed in the Brazil, and rail against the people and their institutions, it is proof positive to me that the country has every right to complain of him—in fact that he is a “ne’er do weel,” that he drinks, or he is an idler; he is incorrigibly dishonest; or finally, to be charitable, that he is an impossible man. This is unhappily far from being the usual belief;* but my personal experience of nearly three years, during which I have studied every phase of society between the palace and the cottage, entitles me to form an independent opinion.

Morro Velho alone will supply many instances of men who came out as simple miners and mechanics, and who by industry, sobriety, and good conduct, unaided by education or talent, have risen to positions which in an older country could not be achieved in a single generation. Some have gone forth from it to become superintendents of mining companies; others are local capitalists, and there are many instances of success on a smaller scale.

At the great mine, besides the officers, there are (June, 1867) eighty-six English miners, and fifty-five workmen and mechanics; the grand total of whites, including families, is 343.† Contracts are made in England, usually for six years, renewable by consent of both contracting parties. The wages of miners and mechanics vary from £8 to £10 per month of twenty-five working days; men of superior skill command more. The outward passage,

* Strangers are disposed, naturally enough, to exaggerate the jealousy of the people, and to complain of a combination against them. But let the complainers try any European country, and they will find, I am convinced, more obstacles in many, in

few fewer, than in the Brazil. Trades unions, and other rank growths of over-population, are of course here unknown.

† In Appendix I, Section C., the reader will find a “General Summary of Station List” for June, 1867.

costing £28 16s., is paid by the Company. During the first three years there is an increase of wages, depending upon good conduct, of £1 per mensem. The men are encouraged to take contracts, and "no progress no pay," secures double the amount of work done on "owner's account." They easily invest their savings at ten to fourteen per cent.; they remit money without cost to Rio de Janeiro, and in the banks there are some £3800 of small economies.

Each miner is bound in a penalty of £50, which bad behaviour forfeits, and £1 is deducted monthly for the "penalty fund." Eight shillings per mensem are taken for the contingency of the return passage, which costs £25; when, however, a man falls sick before the expiration of his engagement, the Company pays for his homeward journey, and his salary ceases from the day of his leaving the mine. This should be rendered compulsory upon all English associations in the Brazil, and thus we should avoid the degradation of seeing our fellow countrymen, after being dismissed by some petty official, wandering about homeless, friendless, barefooted, and in rags. In my day we were not allowed to take home a native servant from India without depositing the value of his return passage; either some similar law should be made by our Imperial Parliament, or the distressed British hussars should be treated as "distressed seamen."*

When miners bring out their families to Morro Velho, there is no contract for the children, whose labour thus belongs to the parents. The newly arrived get credit at the store of Messrs. Alexander and Co., and, as has been shown, house rent amounts to a few shillings a year. The hand, as a rule, preserves his English tastes, which M. Frauentelli and others ignore; he disdains cheap soups, he sneers at the cabbage stalk, he affects ducks and turkeys, port and sherry. In his own language he wants the best of everything, and plenty of it;

* I should propose that even men dismissed for ill conduct should be sent home at the expense of Companies that have employed them. This would lead to more circumspection in engaging servants with good certificates. As a rule the English operative "loses his head" during his few first months in the Brazil. He has escaped all class distinctions, he finds himself

looked upon as an equal, and even received by those to whom in England he would touch his hat on the road-side. Accordingly he waxes "humptious," he "cheeks" his superior, and before he has learned the language or the way to thrive, he is turned out, not to starve—there is no starving in the Brazil—but to eat the bread of beggary, to drink, and probably to rob.

he aspires to "spend with the best," and so does his wife. In case of transgressing orders he is for the smaller offences mulcted, for the greater dismissed. The amount of fines is settled at the daily "Officers' Conference," and the paper is posted at the bridge. I have seen a single mulct of £3 3s.; this is true humanity, as it may save the culprit from the loss of an excellent "berth."

Here the English labourer can do only from two-thirds to three-fourths of his normal task in Europe; he has little manual labour, and the fourteen to twenty miners who are at the same time below ground, mostly act as supervisors, and mark or measure for the blacks. The day is eight hours, and only every third week is night work.

The Englishman, generally speaking, here looks well, and tolerably healthy, without, however, showing the colour and the flesh which he has at home. The Brazil is by far the most salubrious of tropical climates, as far as these are known to me; and the many pulmonary patients who, condemned to death by the doctor in Europe, find strength and well being, will doubtless agree with me. But the robust man of the Temperates requires acclimatization, and he lacks that preponderance of the nervous temperament which will be the portion of his children.

One would suppose that Morro Velho is a paradise for those who have led in England the hard lives of pitmen. But though the labourers are mostly, I believe, satisfied, it is not in human nature, especially in British human nature, to avoid grumbling at the transition from "bread, barley, and boiled turnips," to beef and poultry. There are cases of home sickness, an Englishwoman pined away and died of nostalgia during our visit to the mine, and it was proposed to send back to her natal fens another who seemed likely to end in the same way. Drunkenness is comparatively rare, brandy and gin are hardly obtainable, and the bouquet of the fatal cachaca deters many from the danger. Being mostly from one county, the men preserve their peculiar accent, and not a few of their superstitions. "Downsiding," for instance, has crossed the Atlantic, although the hazel used in the Cornish form of rhapsomancy does not yet grow in the Brazil.

I have nowhere in the Brazil found the Englishman so thriving as at Morro Velho; the wretched little colonies of Germans, and

others dispersed about the Empire, should take the hint and prefer one settlement of 3000 to ten of 300 souls. The apathy that haunts the Anglo-Scandinavian in tropical climates, is here exchanged for an amount of energy inferior only to that of his normal home-condition; his dipsomania is modified, if not cured, by occupation and society, excitement and discipline; and, finally, he is as a rule tolerably contented with his exile, because he is making money, and he may reasonably talk of revisiting the old country. At any rate he knows that he *can* go home. Of course, if he be a wise man,* his home for life will be in the Brazil, and if he be a good man, he will bring out as many of his friends as he can afford to bring. The man who fails in the Brazil suggests to me the grey-headed "full private"—the fault must be with some person, and it is probably to be found in him.

And now to the Brown Miner of "frontal race."

At first the free Brazilian showed a decided indisposition to work at Morro Velho; he had never known a regular employer or regular pay, without which no labour market can exist. He disliked the work of boring, being accustomed only to desultory agriculture, if indeed he had energy or inducement to attempt even that. In 1846 the proportion of this class was 20·23; in 1852 it had risen to 112·79. It was soon found out that a week's work meant a week's wage, that the labour and the remuneration were in constant relation; then houses were built for them upon the Company's grounds, and lodging was to be had for 0 \$ 500 per mensem, where a labourer here averages 1 \$ 500 per diem. The class increased rapidly to a total of 786, namely, 734 men and 52 women, who receive a little less pay; a few children, despite the provincial authorities who in their blindness resisted it, are employed in light work, such as collecting the tools for resharp-ening. The station list for June shows a grand total of 906 souls.† They are employed in the mechanical, the reduction and other departments, and the borers are now almost exclusively free Brazilians. Like their white brethren, they may work over-

* Especially a wise Cornishman, who knows the depressed state of his county, where extensive emigration to more hopeful lands has caused marriage to diminish, the birth-rate to decline, and mortality to increase.

† The ratio may be judged by the following figures:—

Officers	22
European labourers	143
Native „	906
Negro „	1450

Total 2521

time, the day's task being eight hours, which reminds us of the four eights, the modern modification of the Sunday fowl in the "pot-au-feu."

Eight hours' work and eight hours' play,
Eight hours' sleep and eight shillings a day.

From one-half to two-thirds of them make one or two extra days' pay in the week. The task is two holes per diem, after which they are their own masters; the average depth is four palms, but this may be modified by the captain on duty according to the nature of the rock. They work in pairs, assisted by a boy; the latter holds the "boyer" or borer, an iron varying in length from one to four feet. They use the hammer dexterously, and accidents to the hand are rare.

The free labourers work with much more energy and intelligence than the slaves. The employers' chief complaint is their irregularity; on Sundays, fête days and Saints' days, or nearly a third of the year, they do nothing but ride about the country, gamble hard, and "hunt"* women. Among this class drinking has of late years greatly increased, and for more reasons than one, marriage should be encouraged.

It is not to be expected that the desultory habits of a life and the customs inherited from generations, can be totally changed in a few years. There is ample evidence of progress in the fact that neither mines nor railways in the Brazil can complain that labour is wanting.† Moreover, a race of skilled and practised hands is growing up, and it takes "comfortably" to the work as young men in the tin districts of Cornwall. And the "extraordinary dormant mineral wealth" of the country, once exploited by its possessors, will perpetuate and increase the class. Nothing now is wanted but a civilised School of Mines.

* "Caçar" is the slang Brazilian term.

† I am pleased to see that my energetic friend, Mr. J. J. Aubertin, Superintendent of the São Paulo country, has, after a residence of eight years, come to exactly the same conclusion. "Now on our own railway we cannot truly say that we have ever felt the want of labour; yet when we first began there certainly was an indisposition, generally speaking, to work. But, by and by, when one and the other found out that a week's labour really meant a week's money, and that the work was there, and the constant master there too, to pay the money for the work, then the labourer began to

comprehend his real position better. One told the other how the case was, how the remuneration for his toil really glittered in his hand on pay-day, and how he really earned his bread and independence; and very soon disinclination gave place to willingness, and all wanted to come and learn to work, and get their money as their friends were doing" (p. 5. "Eleven Days' Journey in the Province of São Paulo. London, 1866). Similarly on the Bahia and S. Francisco Railway, where at times between 1858 and 1866 from 3000 to 4000 men were employed, free labour was rendered necessary by the terms of the concession.

And here we see distinctly before us the extinction of slavery in this magnificent Empire. The imported negro, the captive, the outcast, the criminal from Africa, has greatly improved his own lot by crossing the sea. But to the higher race which admitted him he has done incalculable injury, in many ways, moral as well as physical, chiefly by prepossessing it against all labour, and mostly against the best of all labour in a young country—agriculture. Where blacks work all work becomes servile, consequently the people has no “bold peasantry, its country’s pride.” Thus in all lands where the moribund “institution” still lingers, there is a class known in the Southern Union as “mean whites,” and in the Brazil called “Vadios,” or “Cappadocios”—idlers, vagabonds. I am aware that the North American “mean white” has often been represented meaner than he is, and that the importance of his class has been for party purposes greatly exaggerated, but nothing too strong can be said against the Vadio family. It lives sometimes upon the industrious, whose humanitarian and Catholic sentiments will not drive a vagrant from the door; more frequently the professional ne’er-do-weel can unfortunately command the labour of one, two, or a few slaves, male and female. He is thus a consumer, not a producer, and whilst he increases the population he introduces into it the myriad evils of mixed blood. Some of these mulatto households disgrace humanity.*

But the day is fast approaching when the Vadio will be compelled to work like other freemen. Already in the Brazil there are important branches of material industry in which the slave is used only as a hard necessity. As specimens I may quote the mining of diamonds and gold, the navigation of the great rivers of the interior, and the cattle breeding, which every year becomes more important, especially to the European emigrant. In the present phase, I venture to state, the negro is absolutely required for agriculture only, and even then he is merely provisional till immigration from Europe shall have set in with steady and copious flood. The great proprietors, some owning 3000 and 4000 head, look with horror at any sudden and premature measure that will desolate their immense plantations

* Those who deem this language too severe will consult St. Hil. (III. ii. 242—4). That excellent author speaks upon the tes-

timony of a high Brazilian officer, and though he wrote in 1820, the picture is still true to life.

of coffee and cane, of tobacco and cotton. They are not reassured by the accounts which reach them from the Southern United States, and their importance secures to them the consideration of the country. Their attitude is legitimate, but this highly intelligent class will be the first to hail the arrival of the white hand.

The employment of free labour on a large scale will do much to remedy an evil which dates in the Brazil from three centuries. The great soldier and statesman, Martim Affonso de Souza, with wonderful political prescience, issued in 1532 an order that "not even to rescue* Indians should white men penetrate into the interior, without express permission from him or from his lieutenants; and that such permission should be given with great circumspection, and only to persons of good repute." This embargo was unwisely taken off on February 11, 1544, whilst he was serving in Hindostan, by his wife Donna Anna Pimental. The consequence was an immediate dispersion of the colonists, who scattered themselves over the country between the Atlantic and the roots of the Andes, from the Plata to the Amazons, annihilated the aborigines instead of training them to labour, and brought in so many slaves that many a house in São Paulo could number 500 to 1000 head. The good results were wonderful additions to geography, and immense discoveries of treasure. On the other hand, the white settlers were decentralised to an extent that semi-barbarism was the consequence, and the backwoodsman who would not hear the sound of a neighbour's gun, left the wealth of the maritime regions wholly unexploited. Even to this day the "Serra do Mar," within sight of the ocean, is mostly covered with virgin forests; it is known to contain extensive mineral deposits, but in rare cases has any part of them been worked. In the present state of the Empire, centralisation round commanding points, and upon great lines of communication, both of river and rail, will be a national benefit.

* Resgatar, in plain English to buy as a slave. I have quoted from p. 70 of the "Memorias para a Historia da Capitania

de S. Vicente," by the celebrated Fr. Gaspar Madre de Deos.

CHAPTER XXVIII.

THE BLACK MINER.

GENERAL REFLECTIONS BEFORE LEAVING THE MINES.

“As the Indian is killed by the approach of civilisation, which he resists in vain, so the black man perishes by that culture to which he serves as a humble instrument.”—*Count Oscar Reichenbach.*

I WILL not delay to consider whether race or climate,* religion, or state of society, or the three combined, give rise to the exceptionally humane treatment of the slave in the Brazil: but I can pledge myself to the fact that nowhere, even in oriental countries, has the “bitter draught” so little of gall in it. My experience has never shown me a case of cruelty practised upon slaves, and I have only heard of one severe flogging. On the other hand I know many awful consequences of over-lenity. But lately, at Aráraquára, in the Province of São Paulo, Benedicto, a negro, was to be hanged for the barbarous murder of his master; the hangman refused to act, and the criminal has been simply shifted from the gallows and consigned to the galleys. I often meet in the chain-gang, literally no penalty, a neighbour’s slave, who, working himself into a passion, causelessly stabbed to death a black, to him unknown, and in presence of many witnesses, drank, vampire like, his victim’s blood: he is accompanied by a brother assassin, who by way of freak killed the helpless old Prior of the Carmo. It is therefore with some regret and much astonishment that I read these lines, traced by so well informed

* One of Humboldt’s good generalizations, amongst many bad, is that “the facility of being acclimated seems to be in the inverse ratio of the difference that exists between the mean temperature of the torrid zone, and that of the native country of the traveller or colonist who changes his climate.” (*Travels*, i. chap. 3.) The distance may be extended in a moral sense to races:

those who inhabit neighbouring latitudes mix as a rule more intimately, and when abroad are more at home than peoples whose foci are further removed. The English slaveholder mostly held himself aloof from the African: the Brazilian, like his forefather the Portuguese, admitted him to far greater familiarity, and the result was deplorable.

a pen: * “Virginia was a paradise compared with Cuba and Brazil. Some touch of softness in the lord, some gleam of pity in the mistress, had sufficed to keep the very worst planters of English blood free from the brutalities which were daily practised in the Spanish and Portuguese cities farther south.” From obsolete consular reports, from the pages of old travellers, and from the writings of men who ran through the country, believed everything they heard, and, like M. Jacquemont, described “après une relâche de douze jours,” in a region eight times larger than France, its capital, its navy, its coasting trade, its commerce, its finances, its government, its society, its servile condition, many cases might doubtless be collected.† But the relations between master and slave are modified by public opinion, and essentially by the progress of civilization. In the present day the Brazilian negro need not envy the starving liberty of the poor in most parts of the civilized world.

The slave in the Brazil has, by the unwritten law, many of the rights of a freeman. He may educate himself, and he is urged to do so. He is regularly catechized, and in all large plantations there is a daily religious service. If assailed in life or limb he may defend himself against his master, or any white man, and an over-harsh proprietor or overseer always runs considerable risk of not dying in bed. He is legally married, and the chastity of his wife is defended against his owner. He has little fear of being separated from his family: the humane instincts and the religious tenets of the people are strongly opposed to this act of barbarity. He has every chance of becoming a free man: manumission is held to be a Catholic duty, priestly communities are ashamed of holding slaves, and whenever there is a war the African is bought and sent to fight by the side of white recruits. Old usage allows

* “New America,” vol. ii. chap. 31. Has the learned author studied the Black Code or the Provincial Laws of the English slave islands? Even in 1815 Prince Max could say of the slaves in the Brazil, “on les traite généralement assez doucement.”

† In this way one of the greatest offenders was the late Mr. Charles B. Mansfield (“esquire and M.A. of Clare Hall, Cambridge”); his liveliness, his trenchant style, his John Bullism, and the ample evidence of good intention in all the harm he did, caused the “noble worker,” as his

editor called him, to be extensively read, believed, trusted; and this increases the measure of his offence. The crudities and absurdities of an untravelled man, who, after a sedentary life, and a month in the New World, had the audacity to write a chapter (No. 4) headed “Brazil: Crime—Political Economy—Colonization—Slavery—Commerce,” have been ably answered in an *Ensaio Critico* by Sr. A. D. de Pascual, Rio de Janeiro, Laemmert, 1861. But of the thousands who imbibe the poison how few will even see or hear of the antidote?

him to purchase his liberty by his labour, and to invest his property in manumitting his wife and children.

I have scanty space for so important and far leading a subject as slavery in the Brazil.* But it may be briefly remarked that there is hardly an educated man in the country who would not right willingly see it abolished if he could find for it a substitute. All look forward to the great day of immigration and free labour. All, too, are aware of the fact that immigration and slavery can hardly co-exist. It is the same with Englishmen who, throughout the Empire, except in the great cities where they can hire servants, buy, and hold, and let, and hire slaves, despite the late venerable Lord Brougham's absurd Act of 1843.† And for the benefit of the wretches with oxidised skins, doomed by philanthropy to die in thousands at Ashanti, Dahome and Benin, not to mention a hundred other African Aceldamas and Golgothas, I venture to hope that the black continent may also be admitted to the boon of immigration. Under all circumstances the negro "coolie" temporarily engaged in the Brazil will benefit himself: confined to field work, not admitted to the house, and looked upon as a stranger in the land, he will benefit others.

Some years ago, when the "Negro's Complaint" still haunted

* The curious reader will find an excellent paper on "the Extinction of Slavery in Brazil," from a practical point of view, written by Sr. A. M. Perdigão Malheiro, translated by my friend Mr. Richard Austin, F.A.S.L., and published in the *Anthropological Review*, No. 20, Jan. 1868. The author, whose studies entitle his views to the greatest respect, estimates the slaves to number between the extremes 1,400,000 and 2,500,000, in 1864. In 1850 the number was 4,000,000. These figures ought effectually to lay the angry spirit of emancipation. If, however, the negroes must be killed off, why, then set them at once free. The measures at present to be adopted are to liberate all the slaves belonging to ecclesiastics, to tax heavily all city slaves and vagrants, to prevent large slaveholders being employed in high positions under government, and to satisfy Europe by fixing a definite time for the final solution of the problem. Lastly, we may observe that Messrs. Kidder and Fletcher calculate an emancipation of one million of slaves in the fifteen years between 1850 and 1866, whilst the productions of the country have increased at the rate of 30 per cent.

† It surprises me to read in Prince Max (i. 220) the cool way in which he recounts how M. Freyre buys and carries off an Indian boy. This was really a vile act to enslave one born free. "It is a startling and deplorable fact, and one that is calculated to lower our opinion of human nature, to witness the rapid adoption by those Europeans who leave their own country animated with the best and most generous principles respecting their fellow creatures, of the maxims and practices of hardened slaveholders." (Notes on the Slave Trade, by W. G. Ouseley, London, 1850.) It is more philosophical to seek and explain the cause than to be startled at or to deplore facts—simply signs that we do not read them aright. For my part, whenever I see a man leave England for the first time filled with the normal superlative and transcendental principles about holding persons to service, I expect a reaction to set in, and that his negroes will soon complain of his remarkable and unreasonable cruelty. For this cause, partly, the slaveholder in South Carolina did not like the "Yankee" overseer.

the public ear, when "black brother" was a mere catch-word and catch-pence in England, when the negro of sentiment and theory had worsted and ousted the negro of reason and practice, and when on this point, and perhaps on this point only, blatant Ignorance would not allow Knowledge to open her lips, sundry grossly impudent and infamous fabrications were circulated about all the English mining establishments in the Brazil.* The benevolent slanderer who wished to puff his own name, and the dismissed employé who would gratify his revenge, pandered to the popular prejudice, and dwelt unctuously upon the "adynamic condition" of the negro labourer, and his "cruel and murderous treatment" by the white. This was carried to such an extent that the Directors of the Great Mine were obliged to send out Dr. Walker, whose able report set the question at rest. But even to the present day, whenever an officer is "sacked" for insubordinacy or incapacity, the first threat he utters is something about "slaveholders."

I proceed now to give my account of the black miner as I found him at Morro Velho.

Without including 130 children of hired blacks, and who are not under contract, the establishment consists of 1450 head, thus distributed:

Company's blacks, 254 (109 men, 93 women, and 52 children); Cata Branca blacks, 245 (96 men, 87 women and 62 children); blacks hired under contract, 951.

In these numbers we may see a modification of Saint Hilaire's statement, "*le service des mines ne convient pas aux femmes*;" † this might have been true under the old system, it is not so now. Generally in the Brazil men are preferred upon the sugar plantations, women on those that grow coffee, and as they are wanted for domestic purposes it is not so easy to hire them.

The "Company's Blacks" consider themselves the aristocracy, and look down upon all their brethren. Both they and the Cata Brancas are known by the numbers on their clothing; the hired

* See an "Introductory Letter to Sir Thomas Fowell Buxton, Bart., on the Frightful Horrors of Modern Slavery as practised by the Imperial Brazilian Association in their Mines at Gongo Soco." "I have sometimes thought," says Mr. Trollope, with great truth, "that there is no being so venomous, so bloodthirsty, as a professed philanthropist, and that when the philanthropist's ardour lies negro-wards, it then

assumes the deepest dye of venom and bloodthirstiness." Witness the doubtless well-intentioned crowd which collected to call for the blood of Governor Eyre.

† Travels, III. i. 329. He has overdrawn the case. In hiring blacks the Superintendent warns owners that women must be accompanied by a greater number of men, and so we find that of the 951 hired, 602 are male and 349 are female.

negroes wear also M. V. marked on their shirts. The establishment expends per mens. £1400 upon contracts: I need hardly remark what a benefit this must be to the large proprietors of the neighbourhood. Thus the Commendador Francisco de Paula Santos lets under contract a total of 269 (including 173 children), his son-in-law Sr. Dumont 145 (97 adults and 48 children), and the Cocaes or National Brazilian Mining Association contributes 142 negroes and 13 children.

The figures given below will show the average of hire:* clothing, food, and medical treatment are at the Company's expense. Usually the agreement is for three to five years, during which period the slave cannot be manumitted. As a rule the Superintendent employs only robust men who have passed a medical examination, but he will take in doubtful lives under annual contract. The slave is insured by a deduction of 10\$000 to 20\$000 per annum for a fixed period; and if he die before the lease has expired the owner still receives his money—there are actually eighty-nine cases of this kind. Pay ceases only if the negro runs away: it is issued every third or sixth month, and the contractors can obtain one year's advance, at a discount of ten per cent.

As regards labour, all are classified according to their strength into first, second, and third-rate blacks. In 1847 permission to work overtime, that is to say, beyond nine hours forty-five minutes, was given to the first-rates. There is another division into surface and underground blacks. The former are smiths and mechanics, especially carpenters and masons, who work between 6 A.M. and 5 P.M., with one hour forty-five minutes of intermission for meals. The oldest and least robust are turned into gardeners, wood-fetchers, and grass-cutters. The regular working day at Morro Velho is as follows—

5 A.M. Reveillé sounded by the gong, and half an hour afterwards the Review.

6 A.M. Work.

8.15 A.M. Breakfast.

9 A.M. Work.

12.30 P.M. Dinner.

* Annual hire of first-class slaves	men	220 \$ 000	women	100 \$ 000
Not paying in case of death or flight	„	230 \$ 000	„	110 \$ 000
Annual hire of second-class slaves	„	150 \$ 000	„	75 \$ 000
Not paying in case of death or flight	„	160 \$ 000	„	75 \$ 000

1.15 P.M. Work.

2 P.M. Change guard. Blasting in the mine.

5.30 P.M. Mechanics' work ended.

8.30 P.M. Return to quarters. The slaves cook their own meals and eat supper at home. Saturday is a half-holiday: they leave off work at 2.30 P.M., and retire at 9 P.M.

The underground labourers are borers, stope cleaners, trammers who push the waggons, kibble-fillers, and timber-men: they are divided into three corps, who enter the mine at 6 A.M., 2 P.M., and 10 P.M. On Sunday the gangs shift places, so that only one week in three is night work. A rough estimate makes the number of the gang in the mine at the same time 620, including all hands. When work is over they proceed to the changing-house, and find a tepid bath at all hours. They put on their surface-clothes, and leave the mine suits either to be dried in the open air, or by flues during the rains. The precaution is absolutely necessary, though very difficult and troublesome to be enforced: the English miners shirk it, and the free Brazilians are the most restive, though they are well aware how fatal are wet garments.

The blacks lodge in the two villages situated half-way between the bottom of the river valley and the Morro Velho hill. Thus, while they escape malaria they are saved fatigue when going to, or coming from, work. They begin the day with coffee or Congonhas tea. Their weekly allowance, besides salt and vegetables, comprises 9 lb. of maize meal, $4\frac{1}{2}$ —5 lb. of beans, $13\frac{1}{2}$ oz. of lard, and 2lb. of fresh beef. Meat of the best quality here averages 3\$000 per arroba, or twopence a pound, and the labourers purchase, at cost prices, the heads and hoofs, the livers and internals of the bullocks killed for the use of the establishment. The industrious have their gardens and clearings: they keep poultry and pigs, fattened with bran, which they receive gratis. Part they eat, the rest they sell to procure finery and small luxuries. "Carne Seca" and farinha are issued when the doctor orders. Nursing women have something added to the six-tenths of a plate of meal, one quarter of beans, and two ounces of lard, and children when weaned claim half rations. All the articles are of good quality, and if not a report is made to the Manager of Blacks.

Drink is not issued every day, nor may it be brought into the

establishment. A well-conducted negro can obtain a dram once per diem with permission of the chief feitor or overseer. Each head of a department has a supply of "restilio," which he can distribute at discretion, and the mine captain can give a "tot" to any negro coming wet from duty. It is, however, difficult to correct the African's extreme fondness for distilled liquors, which in this light and exciting air readily affect his head, and soon prove fatal to him. He delights also in "Pángo," here called Arirí, the well-known Bhang (*Cannabis sativa*) of India, and of the east and west coast of Africa. He will readily pay as much as 1\$000 for a handful of this poison.

I never saw negroes so well dressed. The men have two suits per annum—shirt, and overalls of cotton for the hot, and of woollen for the cold season; the "undergrounds" receive, besides these, a stout woollen shirt, and a strong hat to protect the head. Each has a cotton blanket, renewed yearly, and if his dress be worn or torn, the manager supplies another. The women work in shifts of thin woollen stuff, and petticoats of stronger material; they usually wear kerchiefs round their neck, thus covering the bosom, and one shoulder, after the fashion of African "Minas,"* is left bare. In winter capes of red broad-cloth are added to the Review costume.

The slave labourer is rewarded with gifts of money; he is allowed leave out of bounds, even to Sabará; he is promoted to offices of trust and of increased pay; he is made an overseer or a captain over his own people; at the Review he wears stripes and badges of distinction, and he looks forward to liberty.†

* I have explained this in Chap. 7.

† I was allowed to inspect the official list of black candidates for manumission (according to the Regulations issued by the Directors, January, 1845), and from it the following figures are borrowed:—

Mr. Keogh placed on the Manumission List—

In 1848 negroes and negresses	.	.	4	} A total of 16.
„ 1849 „ „	.	.	4	
„ 1851 „ „	.	.	2	
„ 1852 „ „	.	.	2	
„ 1853 „ „	.	.	2	
„ 1854 „ „	.	.	2	

Dr. Walker.

In 1855 negroes and negresses	.	.	2	} Total 10.
„ 1856 „ „	.	.	2	
„ 1857 „ „	.	.	2	
„ 1858 „ „	.	.	4	

The chief punishments are fines, which negroes, like Hindus, especially hate; the penalties, which now amount to 400\$000, have been transferred to charitable purposes, and swell a small reserved trust-fund, intended to support the old and infirm. Other pains are, not being allowed to sell pigs, poultry, and vegetables; arrest within the establishment or confinement in a dry cell, with boards like a soldier's guard-room; fugitives are put in irons. Formerly the manager and the head captain, who required implicit obedience from the 500 hands of the underground department, could order a flogging. This was abolished, not, I believe, with good effect. Every head of a department can still prescribe the "Palmatorio,"* but he must note and report the punishment to the Superintendent. Only the latter can administer a flogging with the Brazilian cat of split hide; and this is reserved for confirmed drunkenness, disobedience of orders, mutiny, or robbing fellow-workmen. The punishment list is sent in every fortnight, and as a rule is small. I especially noticed the civil and respectful demeanour of the Morro Velho blacks, who invariably touch their hats to a white stranger, and extend their hands for a blessing. They are neither impudent, nor cringing, nor surly, and, in my opinion, there is no better proof that they are well and humanely treated. I would here formally retract an opinion which I once thoughtlessly adopted upon the worst of grounds, "general acceptance." The negro cannot live in the presence of the civilized man: the Brazil proves that unless recruited from home the black population is not more viable than the "Red Indian." His rule and "manifest destiny" are those of all savages.†

Mr. Gordon.

In 1859 negroes and negresses	.	.	10	} Total 92.
" 1860 " "	.	.	16	
" 1862 " "	.	.	5	
" 1863 " "	.	.	5	
" 1864 " "	.	.	2	
" 1865 " "	.	.	41	
" 1866 " "	.	.	18	

Of these 6 lost the boon by intoxication, 2 were killed in the mine, and 14 died.

* The first "palmatorio" seen by me in the Brazil was at the house of an Englishman. It is a "paddle" of hard black wood, somewhat like that used at "knurr and spell," with a handle almost a foot long, and a flat circle about the size of a large oyster at the useful end, which is drilled with holes. Upon the gorilla-like

hand of the negro it can hardly take the effect of that rattan which my old tutor, Mr. Gilchrist, was so fond of applying to his pupils' pink and white palms.

† By the excess of deaths over births, the negro population in the whole of the English Antilles undergoes every year a diminution of 4 in 1000: in Tobago the annual decrease is 16 to 1000. Colonel Tulloch remarks, "Before a century the

Briefly to sum up the statistics of Morro Velho, in these its greatest golden days. The Company has outlived the thirty-seventh year, and during the last six it has paid upwards of £10,000 income-tax to the British Exchequer. The present outlay of the establishment is, in round numbers, £146,000 per annum, and the income £230,000. As a mine it has no parallel in the Brazil; the excavation has descended to zones unreachd by other works, and, as has been seen, its breadth is without a parallel. It directly employs 2521 souls; indirectly double that number.

Besides the 343 English at Morro Velho there are at least 500 of our own countrymen scattered about the Province of Minas. All are destitute of protection; their marriages are to be contested in civil courts,* the nearest consulate for registration is that of Rio de Janeiro, and the cost of a journey to the coast and back would not be less than £50. There is the same difficulty touching wills and inheritances, especially in the case of the Company's officers, and the English medical men who live in the remoter parts of the Province. The French, Spanish, and Portuguese Governments have vice-consuls or consular agents at Barbacena and Ouro Preto, although none save the latter have many constituents. We shall probably see fit to follow their example.

And now adieu to Morro Velho, a place where I found, wonderful to relate, work carried on by night and by day in the heat of the Tropics, and in the heart of the Brazil.

negro race will be nearly extinct in the English colonies of the West Indies." (*Anthropological Review*, August, 1864, p. 169).

* A bill entitled "An Act to legalise certain marriages solemnized at Morro

Velho in Brazil," and "to be cited for all purposes as 'the Morro Velho Marriage Act, 1867,'" remedies part of the inconvenience, but some kind of representation would remedy all.

CHAPTER XXIX.

TO "ROSSA GRANDE."*

Paiz de gentes e de prodigios cheio
Da America feliz porção mais rica.

Caramuri, 6, 49.

Mr. GORDON had obligingly offered to show me a seam of combustible matter of disputed substance. He organised everything for the trip: the animals were ten, allowing to each of us a change; our "Camarada," † or head man, was one Joaquim Borges; and "Miguel," now an old acquaintance, was assisted by a sturdy and very black black, João Paraopéba, named like Lord Clyde from the nearest river. The Superintendent was followed

* The following is an approximative itinerary from Morro Velho to Ouro Preto :—			
Morro Velho to Raposos	. 1 hr. 45 min.	= 5 miles	} Total 1st day's march 28 miles in 8 h. 45 m.
" Morro Vermelho	2 ,, 40 ,,	= 9 ,,	
" Gongo Soco	3 ,, 20 ,,	= 10 ,,	
" Fabrica	1 ,, 0 ,,	= 4 ,,	
Fabrica to S. João do Morro	. 1 ,, 0 ,,	= 4 ,,	} Total 2nd day, 17 miles in 5 hours.
" Brumado	. 1 ,, 0 ,,	= 4 ,,	
" Catas Altas	. 3 ,, 0 ,,	= 9 ,,	
Catas Altas to Agua Quente	. 0 ,, 45 ,,	= 2 ,,	} Total 3rd day, 26 miles in 6 hours 45 minutes.
" Fonseca	. 3 ,, 0 ,,	= 12 ,,	
" Inficionado	. 3 ,, 0 ,,	= 12 ,,	
Inficionado to Bento Rodriguez	. 1 ,, 0 ,,	= 4 ,,	} Total 4th day, 20 miles in 5 hours 45 minutes.
" Camargos	. 2 ,, 0 ,,	= 6 ,,	
" Morro de Santa Anna	2 ,, 15 ,,	= 8 ,,	
" Marianna	. 0 ,, 30 ,,	= 2 ,,	
Marianna to Passagem	. 0 ,, 30 ,,	= 2 ,,	5th day.
Passagem to Ouro Preto	. 1 ,, 0 ,,	= 4 ,,	6th day.
Ouro Preto to Casa Branca	. 3 ,, 20 ,,	= 12 ,,	} Total 7th day, 23 miles in 7 hours 20 minutes.
Casa Branca to Rio das Pedras	. 4 ,, 0 ,,	= 11 ,,	
Rio das Pedras to S ^{to} . Antonio	. 3 ,, 15 ,,	= 9 ,,	} Total 8th day, 13 miles in 4 hours 45 minutes.
S ^{to} . Antonio to Morro Velho	. 1 ,, 30 ,,	= 4 ,,	
Total	. 41 hr. 50 m.	133 miles.	

† Properly a Camarada or Companion. In Portugal it is mostly given to an orderly (soldier) servant. In parts of the Brazil it is a familiar address to a friend, "my good fellow;" generally the name is assumed by every free man who condescends to "help," as New England says, not to serve you. Thus, if employed in lighting the town lamps, he will style himself "Camarada da luz"—help of the light. The Camarada, whose name reminds us of the "comradeship," or brotherhood of the old buccanniers, is a very important, and an exceedingly troublesome personage in Brazilian travel.

by his servant Antonio, gorgeous in the usual lively Minas livery, tall glazed hat and top-boots, turned up with gambogeyellow; a large silver goblet, venerable article of luxury and ostentation, hung by a chain over his shoulder. Mr. L'pool accompanied us, and the journey was to last eleven days.

On July 10, 1867, we set out at 9 A.M., which may be called family-travelling hour at this season—and striking eastward passed the quarter known as the Praia de Bom Será. It consists of six lines of huts, with stays sunk in the ground, supporting a tiled roof upon a timber framework: thus the top is often finished, and the doors and window-frames are put up, before the side walls appear. The next process is to make the latter with wattle, and the clay is puddled in. This curious form of building is called “páo a pique,” or parede de mão, “hand wall,” from the dabbing required. Where the adobe or the pisé is known it takes the place of sticks and clay. Here live the free Brazilian borers, who, like a certain mining population further east, get screwed at times, and though they do not heave half a brickbat at, they wildly hoot with blue-red lips the passing stranger.

We then crossed by an unimportant bridge the Ribeirão, whose bed here widens, and everywhere shows signs of working: a peculiar white efflorescence, said to appear phosphorescent at night, frosts the dark refuse heaps. This was examined by Dr. Walker, who “found it to be nothing but sulphate of iron, which becomes white when deprived of its water of crystallization.” Dr. Birt also reported that it was an “impure sulphuret of iron, or the white copperas of commerce, as gallic acid fully shows by converting it, when mixed, into ink.” But Mr. Reay extracted a large proportion of arsenical pyrites from the ore generally, and especially from the Bahú. The “white stuff” is in fact a sublimate of arsenic, and, as will be seen, the boatmen pretend to trace it all along to the Rio das Velhas. Further down the Praia are the works belonging to the Messrs. Vaz of Sabará: formerly they had many head of stamps, now reduced to a dozen, and a few Arrastres. They retreat the waste sand from the Great Mine, and the “Cascalho” hereabouts is said to be auriferous. Beyond them again are other Brazilian works, called “California.”

We then ascended a steep rough hill, where there is a charming view of the settlement: the yellow soil is very mean, except in

bottoms, and these are "cold" and flooded. On the left is the "Herring ride," which embalms the name of the first Superintendent; it is a pleasant way line circling round the hills, and coming out above the level of "Timbuctoo." Wheeling to the right we descended a stiff slope, rough and stony, sighting below us the basin of the Rio das Velhas; the stream was invisible, and the hollow looked like a vast cauldron whose seething lacked motion. The Rego dos Raposos* or Fox's Leap was then crossed, and near it lie the gold-crushing mill and the dwelling-house of the Capitão José Gomes de Araujo—a family which may be called the old lairds of Raposos. The formation is of pyritic matter, and partially decomposed quartz; there are veins and lodes, both auriferous, but none have yet been found to pay.

The slope ended in the usual abominable old Calçada; here, as in São Paulo, you know the approach to city, town, or village, by the extra vileness of the road. The reason is evident—the ways are more trodden and are not more mended. Over the heights around us were scattered a little coffee and two patches of leek-green sugar-cane. On the left bank of the Old Women's River we passed a decayed private chapel, an old gold-stamping mill, and a huge desolate manor-house belonging to the Araujos. More fortunate than Dr. Gardner, who had to make a long detour, we found a good timber bridge over the swift and swirling stream; it is 400 palms long, 14 broad, and 20 high—the last date of repair is 1864. The bulk of Raposos, or to give its title in full, "N^a S^a da Conceição de Raposos de Sabará," occupies a small bulge or basin in the riverine valley. It consists mostly of a villainous pavement and an Igreja Matriz. This church boasts the honour of being the first built in the Province of Minas; it was once very rich in silver plate, of which something still remains, and it owns its preservation to the care of its Vicar, "José de Araujo da Cunha Alvarenga," whose memory blossoms in the dust. It has two filial chapels, Santa Anna and Santo Antonio,

* The word is indifferently written Raposos or Rapozos. As a rule, in writing the same words, the Portuguese prefers the "s," and the Spaniard the "z." Thus the former would write "casa," the latter "caza." But the orthography in this as in many other points is by no means settled.

The Raposo fox is often confounded with the Cachorro do Mato, a yellowish-grey canine spread over the Southern American continent. Prince Max. (iii. 149) believes it to be the Agourachay of Azara, the grey fox of Surinam, and probably a climatal variety of the renard tricolor (*Canis griseo-argenteus*) of Pennsylvania.

near Sabará. The temple is built of the common hard clay slate, stuck together, not with lime but mud, which melts admirably during the rains: the two little towers are of red taipa or pisé, they are tiled like the church, but they are not white-washed—a symptom of exceeding penury in the Brazil. The parish was created in 1724, and contained two thousand souls whilst the gold-washing lasted; the number is now reduced to one-third.

We rode along the river-ledge into a wooded lane, and up an ugly hill, rough with loose blocks and round stones, and rich with dust of clay slate: barely passable now, what must it be in wet weather? Reaching the “Chapada,” or plateau, we spurred fast over the one good league which we shall find to-day. We passed through a ruined farm with bare and broken walls. It was last inhabited by D. Reta, widow of one José Joaquim dos Frechos Lobo, and now it is church property, belonging to the “Irmandade do Santissimo” of Raposos. Beyond it is a rounded eminence, which caresses the eye of an old surveyor. To the north-west rises the massive, cross-crowned brow of Curral d’El-Rei; further west is the green-clad mount known as Morro do Pires: * to the south-south-west lies our acquaintance the Pico de Itabira, or the “Stone Girl,” whilst fronting us, or southwards, runs the Serra de S. Bartholomeu, the eastern wall of the upper Rio das Velhas Valley. It here conceals the quaint top-knot of Itacolumi, and its regular ridge showed a skyline blurred with thin rain, which now fell upon us for the first time in Minas Geraes. Perhaps these are the “showers of S. João,” somewhat deferred, and interfering with the rights of St. Swithin. The vesicles of cloud were peculiarly well defined that day.

The tall hills and the quorn-shaped mountains are all bluff and running high to the west, which is also the strike of the stone out-crop. The cones and heights where the rain washes are streaked, jagged, and gullied, like those near S. João and S. José, with projecting stripes of laminated talcose-slate, dull, grey, hard, and rugged. This appears to be the skeleton of earth, and in places the formation is quaquaversal. On the summit I observed a trace of copper, which suggests that we

* Mr. Gordon found from the highest point of Morro do Pires that the Itacolumi bears exactly south-east.

are now upon the great field described by Dr. Couto.* The more level places made my wife declare that she was once more crossing the Wiltshire Downs. Gentle swells heave up the surface, backed by bolder elevations, confused and billowy ridges forming an irregular crescent on each side. They descend steep to the little drains separating the mounds; and here we look in vain for level water-meadows.

The vegetation of the broken Campo was the usual Cerrado, dun and stunted, burnt and wind-wrung. Every hollow had its dense coppice hanging from the sides, and forming thick and thicketty jungle along the bottom. The stranger must not attempt to penetrate these Capões. The mauve and yellow bloom of the flowery forest was set off by the silver-lined peltated leaves of the tall "Sloth-tree," one of the most noticeable forms in the woodlands of the Brazil. I believe that this "Cecropia" or Candelabra-tree belongs to the second growth, but Dr. Gunning, whose experience is long and respectable, declares that he has seen it in the "Mata Virgem." Hereabouts the old woods have gone to make fuel for Morro Velho. Yet the continual alternation of brake and fell, of grass-land and shrubbery; the contrast of plateau and dwarf plain with tall peak and bluff mountain, the diversity of colour and the sunshine smiling through the tears of S. João—here the people say the fox is being married—in England the Devil is beating his wife—formed an effect the reverse of monotonous.

The Sloth-tree (*Arvore da Preguiça* or *Ayg*) is so called because that animal ascends it, especially by night, to eat the young shoots and leaves till it looks like a skeleton. This *Urticacea* is called by the Tupys *Umbaúba* or *Umbahuba*, also written *Anbaba*, *Ambauba*, *Imbaiba*, and many other ways, but not "Embeaporba," as Mr. Walsh does. Mr. Hinchcliff ("South American Sketches" chap. xiii.) calls it *Sumambaia*, which means a filix. The wild people make a difference between the *Cecropia palmata* and the *C. peltata* (L.), specifying the latter as *Ambai-*

* He entered it about "Córregos," sixty miles to the north, and found it consist of ash-coloured rhomboids; paving the ground over which his horse passed, without mixture of earthy matter, not in veins, but in heaps, in rocks, in whole mountains, in entire

ranges. It is to Minas, he declares, what silver is to Peru, and far more abundant than iron, though in other parts of the world bearing the proportion of one-tenth to the ferruginous deposits.

tinga, or the "White," because the older leaves are lined with a hoary down, are frequently upturned as if they were withered, and patch the garment of the tree with white. The young foliage is known by its burnished red tinge, which adds not a little to its beauty. The Brazilians also recognise two kinds, Roxa and Branca. The *Cecropia* is well known in Guiana and the Antilles, where the people call it Coulequin and "bois de trompette." The "Indians" employed this wood and the Gameleira for lighting their fires with friction. The negroes easily remove the inner pith, and use it not only for trumpets, but for tubes, spouts, and water-pipes. The tree grows fast; in four months it is as thick as a man's arm; it breaks easily, but it is a true wood, not a mere juicy stem; and it is said to make good charcoal for gunpowder. The juice of the buds is used as a refrigerant against diarrhoea, dysury, and similar complaints; but I have never heard that "the flower is highly prized as a remedy against snake-bites."

The *C. palmata* has a light grey, smooth, bare stem, grass-green when very young, rarely perfectly straight and tapering, generally somewhat bent, and often thirty feet high. About the summit spring, at a right angle and slightly curving upwards like the arms of a candelabrum, naked branches with their large palmated leaves on long supports at the extremities, like gigantic chesnut-leaves joined at the stalks. The soil makes a great difference in the shape of the tree: in certain rich lands the bole appears shorter because the offsets commence sooner, and in this case the primary boughs have a much greater number of secondary branches. Great variety of appearance is given by the bean-like bunches which hang to the stem of the white-lined young leaves, and by the old foliage, which in decay waxes red and finally black. The *C. peltata*, which the people call red, has more the appearance of a tree and less of a shrub: its stiff and somewhat ungainly boughs spread more widely. I have always held the *Cecropia* to be the characteristic growth of the Capoeira: it certainly is the king of the "bush."

The good league ended at a gateway, which leads from and to nothing but a vile mile of broken dusty path. It winds unpleasantly close to deep gaps, shafts, and holes, which show how much the country has been turned up, and which makes you calculate the possibility of involuntary sepulture. The surface of the ground was clad with wild grass (*Capim do*

Campo), and bright with the pretty white flower of the Break-pot (*Quebra panella*), so called because it easily flares up and cracks the clay. A turn to the east showed us Morro Vermelho in the normal basin. The sphinx-shaped Red Mount, which gave the name, rises to the south-east of the Settlement: the lightning had lately destroyed its capping cross. The double-steepled church, with three black windows and abundant white-wash, spoke of prosperity; and as we wound downwards, up came the sound of the village bells, informing us that the energetic shepherd was calling his flock to spiritual pasture. The houses were scattered amongst masses of bananas tufted with palms. We came upon the *Calçada*—*une fois sur la chaussée et le voyage est fini*" may be said here as in Russia—and about noon we entered the Settlement.

Sr. Francisco Vieira Porto—popularly "*Chico Vieira*"—gave us breakfast and notices touching Morro Vermelho. The precise date of its foundation is unknown: it can hardly be older than the beginning of the eighteenth century. Gold was found there naturally alloyed with copper and iron: it was worked in about a score of places;* and of these eight still do a little business. Industry gave it importance, and in all troubles and disorders the turbulent Mineiros took part with Caethé and Raposos against the Portuguese authorities, and the powers that were from home. The vivacity, compared with the size of these places, was surprising; but in those days landed proprietors and mine-owners had not only negroes but multitudes of Red-skin slaves who liked nothing better than a row. In 1715 it armed itself and joined in open revolt the Villa Nova da Rainha (now Caethé) and Villa Real (Sabará). The mutineers refused to pay the quint of gold demanded upon each pan, and required the remission of their usual tribute, which was only 960 lbs. of the precious metal. They had actually the insolence to appear before the Governor, the "Most Illustrious and Most Excellent Dom Boaz Balthasar da Silveira," and with abundant "*barbaridade*"—to use his own phrase—they shouted in his noble ear—"Viva O Povo!"—Long live the people.†

Morro Vermelho is now a mere Arraial, a long, straggling "encampment," like a fair or market, with one street, "the

* All duly named by the Almanack (1864-5).

King, June 16, 1715, and describing the outrage, is printed in extenso by the Almanack of Minas, 1865, pp. 237-240.

† The Dom's letter addressed to the

general fault of villages in Minas,"* forming the highway up and down which travellers must pass. It has a minimum of 100 houses and a maximum of 180: there are two upper-storeyed dwellings, and I counted four Vendas or Grogeries. The people suffer much from goitre, and the place from want of communications; this greatly depresses their agriculture, their cattle-breeding, and their iron-smelting. Carts must make Morro Velho *riá* the Rio das Pedras, or along two legs of a very acutangular triangle.

Mr. Gordon, the C.O., allowed us only an hour for breakfast: the days were short, and night-travel amongst these hills is long. We had no time to call at the pattern one-storeyed house near the church, occupied by the vicar, Padre João de Santo Antonio; † a reverend of excellent reputation, who in his town and his flock makes them remember what comes next to godliness. We set out at 1:30 P.M. up the rocky main thoroughfare, and crossed a gruelly stream thick with gold-washing: like the Córrego da Panella on the other side of the settlement, it is an influent of the Rio das Velhas. Beyond it the rutty road spread far and wide over the prism-shaped hill, and from its narrow crest we at once dropped into a rich bottom-land.

In front rose the tall Serra of Roça Grande facing to the setting sun; hence its cold temperature and its noble vegetation. Here, contrary to the rule of the Maritime region, the north-west is the rainy wind; the south-east brings dry weather. Thus Gongo Soco on the northern side of the ridge averages 148 inches per annum to 68.28 that fall at Morro Velho on the southern flank. On our left, and low down, was the large fazenda of an Alferes Matheus Lopes de Magalhaes: the house, the grounds, and the fine black cattle, show that the old Portuguese proprietor was a hard-working energetic man. Family troubles, however, have compelled him to leave his home, and the orchard, ‡ whose grapes and apples were famous, is now a waste.

* The reason is that the first houses were always built on the banks of the auriferous streams where washing began.

† The brother of this ecclesiastic has named himself "Demetrio Corrêa de Miranda." A chapter might be written upon the subject of Brazilian names: as a rule any man takes what he pleases, usually the property of some great historic house, and changes it when he likes. Sometimes he goes so far as to publish the alteration

in the newspapers, but this is only when he is in business. Often two and even three brothers have different family names, dropping a part, assuming the mother's maiden name, or taking the name of an uncle. The subject will, however, not require the legislation which, in France, was demanded by the important particle "de."

‡ Pomar.

To the south-west is a deep excavation, the mine of "Juca Vieira;" the site is the flank of a rugged spine composed of quartz, reddish slate, ferruginous substance, and auriferous soil, forming pyrites. The Gongo Soco Company did not succeed with these diggings, which are now abandoned and choked with water.

Westward of this place, and adjoining the Rossa Grande property in the east, is the Repuxa* or Repucha Estate, five miles long by three broad. It belongs to jarring little owners who hold it by the "Datas"† or mineral concessions granted by the old Guarda-Móres, and it has been worked by a kind of Sociedade. In 1864 the Superintendent of the St^a Barbara Company at Pari recommended it through a London broker as a "splendid field for mining operations," and advised the sum of £40,000 to be laid out upon it. He reported the rock to consist of clay and talcose slate, with strata striking nearly east to west, and dipping 40°—50° south; the lode to be white and yellow quartz, with iron and arsenical pyrites; "Olhos" swells or bunches, which have given 50—60 oitavas per ton; and auriferous "Cáco," expected to graduate into pyritic produce below. As yet nothing has been done: perhaps, however, the project is not dead but sleeping.

Descending a steep, we found the land blooming with the Capim Melado, whose long glumes suggested heather. The hill was rough enough with rolling stones to puzzle an Arab. We then forded a streamlet and entered the Rossa Grande Estate. This until lately was part of the property belonging to the Marquess De Barbacena, a Brazilian gentleman well known in Europe. As we rode up, a miserable tail-race on our right, discharging some 300 gallons per minute, represented the only water supply; the path was evidently made with toe and heel, an "unsophisticated creation of nature," as is said of the highway in Siberia. Turning to the left, we passed a row of ground-floor out-houses more foully dirty than any I had seen that day. On the hill above, the inevitable Casa Grande had been commenced, but we

* The "x" in Portuguese sounding like "ch," or our "sh," allows the spelling to be confused, as in Cachaça or Caxaca, Cachoeira or Caxocira, Chique Chique or Xique-xique.

† These "Datas" have been compared with the "Tin bounds" of Cornwall: the comparison is just as far as streaming goes, but not in mining.

went straight to head-quarters, which were temporary and humble. The Mining-Captain and Manager, Mr. Brokenshar, came and asked us to lunch: we declined with thanks, as we were short of time. "Then," said the host, "I've a bit of hot dinner in here—I shall wish you good-bye." He was evidently Cornish and cautious, nor did we like to put many questions. The place looked a failure: there were in sight fourteen very depressed white men, a few free Brazilians, and no slaves.

Thence we made for the stamps and inspected the stuff. The mine, which lies high up the hill-side, is a layer rather than a lode, dipping to the east, and cropping out of the north-north-western side of the Rossa Grande Ridge. The containing rock is a pinkish substance, coated with a thin layer* nearly all iron. Through it run veins of decomposed and easily powdered quartz of the sugary variety, expected to contain "Cáco." This cacophonous term is applied to quartz and oxide of, others say sulphate of, iron, and is held by miners to be a valuable stone. We also saw laminated iron-quartz containing a little iron pyrites, principally found in brown auriferous soil. The best gold-bearing substances in the formation are reddish oxide of iron and the "elephant tusk," a plate of dark micaceous impure iron, running parallel with the sugary quartz. Often there is a third layer of brown and decomposed iron oxide.

This mining property had long been in the market for £1600 without finding a purchaser. Presently a gentleman at Rio de Janeiro disposed of it for £22,000 (£11,000 in cash, and 2200 shares of £5 each fully paid up) to the Rossa Grande† Brazilian Gold-Mining Company Limited—the capital being £100,000. A Mining Captain who had known the place for twenty-eight years reported upon it in 1862, and declared that the estimates show 56 per cent. per annum upon a called-up capital of £40,000. According to the Prospectus the land extends on both sides of the Serra do Socorro, and thus it has, or is made to have, a rivulet at its disposal. The formation is quartz, brown oxide of iron, and arsenical pyrites, in a

* Called by the Brazilian miner "Capa."

† The original word is probably Roça, a clearing. But Rossa is the name in

which the property was conveyed, and thus it is written by the "Almanak." Probably they were afraid that in Europe "Roça" would become "Roka."

containing rock of clay. Gold exists as tin and copper in England, where the talcose slate effects a mysterious conjunction with "granite."* The reporter also found a bit of quartz showing visible gold. There are said to be three distinct rock formations, all auriferous, besides one of Jacutinga, which is still unexplored. The first lode is white quartz and iron, the second is yellow quartz with auriferous arsenical pyrites and rich "Olhos," and the third is "Caco." The direction is east to west, and the dip 40° south.

Unfortunately assays from this lode do not give two oitavas per ton, which, in working on a large scale, means little or nothing.

* I saw no granite at these altitudes : the hard sandstone has probably been mistaken for it. So at Rio de Janeiro some one told me that the auriferous deposits of Minas were all granitic where gold had taken the place of mica.

CHAPTER XXX.

TO GONGO SOCO AND THE FABBRICA DA ILHA.

Overhead upgrew
Incomparable height of loftiest shade,
Cedar and pine and fir and branching palm.

Milton.

THE vast curtain of thin blue misty cloud, majestically drifting eastwards, did not raise its folds before 3 A.M. ; luckily, for the sun that succeeded it made our clothes and riding gear smell distinctly of burning. We breasted a steep patch of "terra vermelha ;" here "red land" is a ruddy argile, not, as in the Province of São Paulo, degraded volcanic matter. There was also "terra vermelha tatú," much affected by the armadillo,* and the rest was the common "maçape" † or "ball-foot" clay, more or less ferruginous. In places the ochre-tinted ground showed long streaks of "esmeril," not our emery, but a dust of magnetic iron which proves fertility of soil, which generally accompanies wash-gold, and which is, they say, associated with iridium or osmiure of iridium.‡ We are now in one of the dampest parts of Minas ; it is the heart of the dry season, but pools still pit the greasy surface of the path.

Reaching a short level we run along the western slope of a ridge, and with many uncalled-for windings, such as travelling north when our course was south, we turned to the east. Beyond

* The common varieties given by Koster and others, are the "tatú bola" (*Dasypus tricinctus*), whose jointed armour enables it to ball itself like a hedgehog : the delicate meat is compared to that of the sucking pig ; the "tatú verdadeiro," or true armadillo (*D. novemcinctus*), a larger species which cannot "ball ;" the "tatú greba" (peba ?) said to be anthropophagous (*D. Gilvipes*), and the "tatu Canastra" (*D. gigas*).

† The Brazilian farmer has, I have said, a distinct name for every variety of growth that clothes the vast expanse ; and he as carefully distinguishes the several soils. I presume that "Maçapé" means "ball-foot ;" it certainly balls the mules' hoofs, and renders riding in hot weather a succession of slides.

‡ This is positively asserted by José Bonifacio (p. 14, *Viagem Mineralogica*).

the summit of the Serra de Luis Soares we change water-shed, leaving the basin of the Rio das Velhas, or rather of the Rio de São Francisco, for that of the Rio Doce. The lands, once owned by the Gongo Soco Company, are now the property of the Comendador Francisco de Paula Santos. The road at once improves, it has been widened and partially drained; it is the Brazil *versus* England, and England is, I regret to say, "nowhere."

On the left was the junction of the Caethé* highway to Gongo Soco; we were shown the whereabouts of the town, at the base of the Serra da Piedade. I regretted that we had not time to visit it; the church is famous throughout the Province, and the place produces pottery of a superior quality, a blue clay which burns to a light greyish tint. But we had seen and were still to see, many a temple and a tulerie.

The south-eastern side of this ridge is enriched by the overfalls from the western face; we now plunge into the true "Mato Dentro," or inner woodland formation. It is the fourth region, lying west of the Campos or Prairies, the Serra do Mar or Eastern Ghauts, and the Beiramar or Maremma; on this parallel it will extend west to the Cerro or true Diamantine formation, which reaches the luxuriant valley of the Rio de São Francisco. Originally the term "Mato Dentro," which is still applied to many settlements, was descriptive of the secular forests which lay "within" or inland of the grassy hills and prairie lands. These virgins of the soil have long been cleared away from many parts, and have been succeeded by tall second growth, stunted scrub, and the sterile fern.† Here and there, however, vast tracts of the primitive timber remain.

Mr. Walsh ‡ proposes six regions or varieties of surface over

* Caa-été, or caa-reté, would literally signify "very bush," or "bush-much," true or good growth; hence a forest, applied either to the Mata Virgem or to the Mato Dentro. Many places in the Brazil have this name, which is also rendered in the vernacular "Capão bonito."

† "Caété," derived from the same roots, is also a broad lettuce-like leaf from 3 to 5 palms long, and growing in rich damp grounds. The Indians made of this vegetation coverings for their provisions, such as war-farinha: the Brazilian trooper twists the leaf like the grocer's brown paper

cone, and drinks from the rustic cup.

From "Caéthé" is derived the name of the South American wild hog, known as "Caetetu:" the last syllable is suu (also written sua and sóo), changed for euphony to tuu, and thus the word means literally "virgin-forest-game."

‡ "Toda essa terra se cobre, depois de meia duzia de plantacões, de um feto (filix) a que chamão 'Sambambaia,' e que acontece deseparar a terra," says Dr. Couto (p. 80).

‡ Vol. ii. pp. 299—312.

which his route lay. These are : 1. Beiramar ; 2. Serra Acima ; 3. Campos ; 4. Rocky metalliferous Serras, "a stony Arabia" ; 5. The Mato Dentro, which he describes as "low eminences covered with copse and brushwood, frequently interspersed with ferns and brambles" ; and 6. "Bristly peaks and conical mountains of bare granite," for which read granular or quartzose "Itacolomite."* In the Cisandine valley of the Amazons River, Mr. R. Spruce finds five distinct series of vegetation, independent of the actual distribution of the running waters, and to a certain extent, of the geological and the climatic constitution of the country. He gives : 1. The Riparial Forests, which, with their scrub, live submerged for many months of every year ; 2. The Recent Forests ; 3. The Low or White Forests (caa-tingas ?), the remains of an ancient and highly interesting vegetation, which are now being encroached upon by a sturdier growth ; 4. The Virgin or Great Forests which clothe the fertile lands beyond the reach of inundations ; and, lastly, the Campos or Savannahs, regions of grassy and scrubby knolls, glades, and hollows.

We halted to admire the "floresta fechada"—closed forest—this pomp and portent of nature, this entire disorder of vegetation, through which the tropical sun shot rare shafts of golden light, and which kept the gloaming even at mid-day ; viewed from above the feathery leafage disclosed glimpses of yellow downs, grey rock-peaks, and blue ridges dotting the misty background, whilst the base was of impervious shade. The surface, wholly undrained and unreclaimed, is a forest mould, a layer of soft, spongy, chocolate-coloured humus, the earth of leaves, trunks, and root stools, in which the well-girt walker often sinks to the knee. After travelling through it, man learns to loathe the idea of a march amid a state of nature. Essentially uneven, the ground is a system of sombre sloping valleys and deep, abrupt ravines clothed in double shades, here soled with mud, there cut by a cool stream rolling its crystal down stone steps and over beds of pure sand, pebbles, and rock slabs. In some places it is diversified by cliffs and drops, in others knife-backs separate precipices on either side, and in others the stony bone pierces through the skin. The sections show a subsoil of rich

* The reader must be warned that these regions are not always distinctly marked : for instance, the metalliferous Serras (Cerro formation) alternate with the Mato Dentro.

red clay, embedding boulders of granite, gneiss, or greenstone,* or disposed in layers of argile, resting, as in the Maritime Range, upon the rock floor. Its climate is, during the day-time, a suffocating, damp heat, which causes a cold perspiration to follow the slightest exertion. The sun-beams rarely reach and never warm the mouldy ground, while the tree screens deprive earth of wholesome draughts. The nights and mornings are chill and raw; and during storms the electricity is excessive. Fevers abound, and the few human beings who live in the "greenwood" are a sickly race, sallow and emaciated, bent and etiolated, as if fresh from a House of Correction.

The altitude of the Mato Dentro is here that of the Maritime Range, the climate is similar, consequently there is a family likeness in the vegetation, which is fed fat upon abundant carbon, genial rain, and tropical sunshine. The dreams of the third and twelfth centuries, which, reviving the Hamadryads, restored to trees human spirits, here seem to be realised; everything growing wrestles and struggles for dear life, as if endowed with animal passions and bestial energy. In the clearings, where the bulwarks of verdure stand outlined, we are struck by many a peculiarity of the equatorial forest. The slim masts of the harder timber are planted in the ground like poles, the softer woods have giant flying buttresses raised from five to eight feet above the soil and forming the great roots below. The walls of the chamferings would enclose a company of soldiers; the wings here, as in Africa, are easily converted into planks, and the

* In the valleys, coombs or corries, these formations suggest "boulder-drift." Unfortunately the ravine floors and the "Tors" or rock-hummocks (roches moutonnées) are not "ice-dressed," or, at least, stone-scorings and striated, polished or grooved surfaces have not yet been observed. Professor Agassiz, the father of the glacial theory, remarks (Journey in Brazil, pp. 88—89), "I have not yet seen a trace of glacial action, properly speaking, if polished surfaces and furrows are especially to be considered as such." He attributes the absence of striation and "slickenside" to the "abnormal decomposition of the surface-rock, which points to a new geological agency, thus far not discussed in our geological theories." He believes that the warm rains falling upon the heated soil must have a very powerful action in accele-

rating the decomposition of rocks; and he compares it with torrents of hot water striking for ages upon hot stones.

Few Brazilian travellers will accept this explanation of the absence of "grooving" and "burnishing." Almost all residents are agreed that in this country hard stone used for building, and other subaerial purposes, suffers notably less from atmospheric modification than it does in Europe. Nor is it easy to see how warm rain washing heated surfaces would affect the latter more powerfully than the tremendous force of alternate frosts and thaws of the so-called temperate regions.

It is, however, premature to discuss the subject of "ice-dressing" in the Brazil: the hammer must be freely used *in situ* before theorising can be of value.

Indians, an old missionary informs us, used them as gongs to recal stragglers by striking them with hatchets. The trunks are white-barked with etiolation, red-brown with various lichens and mosses, or spotted with a resplendent carmine-coloured growth.* They stand out like a palisade against the background of gloomy shade, and many of them are so tall that though the Indian arrow will top them, the shot-gun can do no harm. They shoot up boughless before spreading out, as high as possible, the better to fight the battle of life and to plunder their weaker neighbours of goodly sun and air, light and heat. The disposition of the few branches also is varied by the shape and tint of the leafage; some, the myrtles for instance, are marvellously symmetrical; others, the Malvaceæ and the Euphorbias, are picturesquely irregular; the result is a wonderful and a beautiful complication. Many species, I may venture to say, are unknown. The Myrtaceæ and Leguminosæ are the most numerous; the aristocracy is represented by Hymenææ, Bauhinias, giant figs, towering Lauruses, and colossal Bignonias, which supply the hardest timber. The beauties are the Acacias, the Mimosas, the Lasiandras, and the slender-waisted palms, with bending forms and heads charged with tall silken plumes. The proletariat undergrowth is represented by Cassias charged with flower-tufts, Heliconias, ground-palms, tree-nettles (*Jatrophas*), Bigonias, Agaves, many kinds of Cactus, arundinaceous plants, and various Bamboos, often forty feet high, either unarmed or terrible with thorns. These form impenetrable *fourrés*, through which only an elephant's weight could break; the hunter must painfully cut for himself a path with the *facão* or bill, and he feels as if safely lodged in a vegetable jail.

The number, the variety, and the brightness of the flowers distinguish this Brazil forest from the more homely, though still beautiful growth, of the temperate regions, Canada and the Northern States of the Union. The general surface is a system of wonderful domes charged with brilliant points of light, glittering like vegetable jewels. It is now autumn, but the cold season here, as in Africa, takes upon itself the office of our spring, and thus spring and autumn mingle their charms. Some trees are still bare of leaf, others wear garments of ashen-grey or sere and

* John Mawe took with him to England some of this lichen, and tried, but in vain, to utilise the dye.

yellow; others are robed in rosy tints and burnished red. The normal colour is a dark heavy green; every shade of green, however, appears, from the lightest leek to the deepest emerald. While a few trees are in fruit many are still in flower, and here again is an endless diversity. The gold and purple blossoms first attract the eye; there is no want, however, of white and blue, pink and violet, crimson and scarlet. They load with perfume the moist heavy air, and once more there is every variety of odours, from the fragrance of the Vanilla and the Cipo Cravo, which suggests cloves, to the Páo de Alho, that spreads the smell of garlic over a hundred yards around it.

Most astonishing perhaps of all the forest features are the epiphytes, air-plants and parasites. The weak enwrap the strong from head to foot in rampant bristling masses, and hide them in cypress-like pillars of green. Even the dead are embraced by the living that swarm up, clasp, entwine, enwrap them, and stand upon their crests, the nearer to worship Sol and Æther. Every tall, gaunt, ghastly trunk, bleached with age and grimly mourning its departed glories, is ringed and feathered, tufted and crowned with an alien growth that sucks, vampire-like, its life-drops till it melts away in the hot moisture, and sinks to become vegetable mould. The least fracture or irregularity of stem or axil is at once seized upon by a stranger, that lives at the expense of the tree and assists at its death. Every naked branch is occupied by lines of brilliant flowers and tufty leaves of metallic lustre. Thus each venerable ancient of the virgin forests is converted into a conservatory, a botanical garden, "un petit monde," numbering a vast variety of genus and species, admirable in diversity of aspect, and clothed in a hundred colours—with truth, it is said, that a single trunk here gives more forms than a forest in Europe.

As a rule, orchids are not so abundant in the forests of the interior as in those nearer the sea, where they hang the wood with tufts of roses and immortelles. The upper branches of the tree are richest in pendent Cacti, and below them trails the bizarre, dull-grey Barba de páu* or Tillandsia. Further down flourish garlands and festoons of Arums and Dracontiums, Marantas and Caladiums, with succulent, dark-green, cordiform leaves.

* Also known as Barba de Velho: I have alluded to it in Chapter 3.

Most remarkable is the Bromelia, with coral-red calyx and the points of the folioles passing from flame-colour to purple-blue. There are bouquets of red, yellow, and orange flowers in spikes or umbels, now like the lily, then suggesting the hyacinth; they press close together, and sometimes one kind will take root upon another. The creepers are woody Bauhinnias, Paullinias, and Banisterias, mixed with the withe-like convolvulus, the blue-flowered Ipomœa, much like our common convolvulus, the Vanilla, whose pods here feed the rats; the Grenadilla, studded with apples, and a variety of quaint and gaudy Passion-flowers. Many of them, Ampelidæ, Aristolochias, Malpighiaceæ, and others, are families either belonging to or best developed in this New World, and each has branched off into many a species. The ligneous vine-like lianas run up the masts with gigantic flat leaves, disposed at intervals like those of the dwarf English ivy. Not a few of them are thorny, and the people believe their wounds to be poisonous. Some throw down single fibres or filaments like a system of bell-wires fifty feet long; others, varying in thickness from a thread to a man's arm, trail across the path. These hang like the strained or torn rigging of a ship; those cling like monstrous boas to the bole till they reach a height where they can safely put forth their cappings of tufty leaves and flowers. The slightest sketch of their varieties would cover pages. The convolutions seem to follow no rule as regards the sun, although the southern side of a tree, like the northern in Europe, is here usually distinguished by a more luxuriant growth of moss and lichen. Our old friend, the Cipo Matador (*Clusia insignis*, "Mata pân"), that vegetable Thug, winds like a cable round the tree-neck which it is throttling. Many of the climbers pass down the trunks, take root anew, or run along a fallen forest-king, and swarm up the nearest support; from this they again descend, and thus they rope the forest with a cordage wonderful in its contrasts and complexities. Lowest upon the trees are the pendent fringes of delicate fernery, which are terrestrial as well as air-plants, mossing over every rock and giving life to the stone. In marshy places spring palm-like Equisetums, which easily overtop a man on horseback. The tree-ferns* are no unworthy

* It cannot be said in the Brazil that tree-ferns have a limited range: I find them everywhere in the humid climates

between the sea shore and 3000 feet of altitude.

descendants of the Calamites, bundles of fibres, forty feet high ; the eye dwells with pleasure upon the "antediluvian" type, comparing the smallness and the delicate cutting of the bending and waving folioles with the tallness and stiffness of the trunk ; often, moreover, grimly armed with thorns.

These virgin forests have other dangers than fever and ague. It is necessary to encamp in them with care. Often some unwieldy elder, that has ended his tale of years, falls with a terrible crash, tearing away with him a little world. Where the ground is much "accidented" the dense huge vegetation of the lower levels fines off above into thin and scrubby *caa-tinga* and *carrasco*, where the winds bring no risk. During long-continued tropical rains tree shelter is of scant avail ; at first only a fine spray descends, but this soon collects into huge drops and small spouts of water. Many of these growths are the despair of botanists ; the inflorescence is found only on the top, and the wood is so hard that a day is easily wasted in felling. It is the same with the air-plants, which, carried from place to place by winds and birds, mostly grow far out of ladder reach.

Glorious in the sunshine, the Mato Dentro becomes weird and mysterious when the lurid red light bursts from the sunset clouds upon the mighty fret work of olive green. It is especially interesting when a storm gives deeper gloom to the depths of the alcoves, and presently startles all the sombre solitude. The forest is poor in large life, the grandest specimens are the poorest ; as in Equatorial Africa, the inanimate will not allow the presence of the animate ; we must, therefore, look for game in places where the forest outskirts meet cultivation. On the other hand, it is unpleasantly rich in the smaller life. And as we see vegetable forms ranging between the arctic cryptogams, mosses, and lichens that encrust the rocks, which are covered with the tropical Bromelias, and which shadow the palms, so we hear the scream of the hawk, the cry of the jay, and the tapping of many woodpeckers,* combined with the chatter of the parrot and the parroquet,† and the tolling of the bell-bird from the lofty tree-top. "Ubi aves ibi angeli," said the older men, and we love the

* Especially *Anabatis* (Temminck) *erythrophthalmus* ; *A. atricapillus* and *A. leucophthalmus*, a reddish-brown bird with a singular cry ; it is described by Prince

Max. iii. 32, and iii. 43.

† Parrots are rare in this region, and the macaw, that prime ornament of the virgin forest, has been killed out.

feathered biped, not only for itself, although loveable *per se*, but because its presence argues that of man. Nor must we forget, while noticing the "natural harmonies" in these leafy halls, the music of the "singing toad" in the swamp, and the frog concerts carried on in the water and the grass, on the earth and every fallen tree. At a distance it is a continuous recitativo with base and treble, interrupted at times by a staccato passage, which seems to be the cry of a child, the yelping of a cur, or the blow of a hammer upon an anvil. But even a list of small life, of the moths and butterflies, the beetles and the bees, the mosquitos and the abominable Marimbombo wasps, would delay us too long—we should not reach Gongo Soco to-night, or in this Chapter.

As we progressed slowly down the dark alley, admiring the "verdobscore" scene and the sunlight,

. . . broken into scarlet shafts
Amid the palms and ferns and precipices,

"O da Casa! any one at home!" cried a cheery voice behind us. We turned and recognised the Director of the Cuiabá Mine, Mr. James Pennycook Brown, F.R.G.S., whose acquaintance we had already made.

Loose his beard and hoary hair
Streamed, like a meteor, to the troubled air

as he rode up to join us. After a joyful greeting we dismounted to walk; the path, skirting deep valleys and tangled ravines, showed much of the sublime and beautiful, but it was very muddy, steep, and slippery—in fact, it had little of the comfortable. At Cantagallo, highest mining station below the divide, we entered upon "Cánga," here an incrustation of brown hæmatite. It now paves the ground, there forms ledges projecting like roof-eaves; beneath it there may be claystone or Jacutinga, with or without gold.

Descending the hill we saw through the avenue of trees "Morro Agudo," a little peak blue with distance and bearing east with northing. Here, in the parish and district of São Miguel de Piracicaba, on an affluent ten to twelve leagues from the true Rio Doce, is the iron foundry of M. Monlevade, a French settler of the old school. Though an octogenaire he turns out more work than any of his neighbours, and he supplies

the Great Mine, despite the interval of eighty miles, with stamp heads and other rough appliances. His slaves are well fed, clothed, and lodged; by way of pay they employ the Sunday in washing gold from the stream, and they often make 1\$000 during the day; if compelled to work during the holiday they receive a small sum by way of indemnification.

Nearing the hill-foot, we turned abruptly down a steep to the left. On the right was a huge pit, red and yellow, whence the auriferous matter had been removed. Then appeared on the other side the upper ground of the once famous mine. The tall hill was rent and torn as if by an earth-slip, and showed a huge slide black as if charcoal had been shunted down it: at the bottom was a large rugged open cut such as Brazilian railways affect. The surface, as the sun withdrew, appeared the colour of lamp-soot. In this western portion was sunk Lyons's shaft, once the richest, and Gardner may still be justified in asserting that about half a mile to the eastward of the mine entrance the auriferous bed narrows to a point, but that "westward it appears inexhaustible."

We followed the bubbling waters of the *Córrego de Gongo Soco* till we came to the present workings. All is on a very small scale, confined to removing the pillars that were left, washing out the sides of the roadways, and taking up, where possible, portions of the old lines. Eighteen head of stamp, a feitor, and a few negroes are all the symptoms of present industry. The property, which runs one mile east to west, by about half that breadth north to south, now yields, they say, about 4 pounds Troy per annum, and the Commendador would, it is believed, sell it for a very moderate sum.

The shades of Captain Lyon and Colonel Skerrett must haunt this Auburn in "West Barbary," once so wealthy, now so decayed. It is melancholy to see ruins in a young land, grey hairs upon a juvenile head. The huge white store to the left of the path is shut up, the gardens have been wasted by the tame pig, the excellent stables are in tatters, whilst from the remnants of the negro *Sensallas* blind and crippled blacks came and received sixpences from Mr. Gordon as we passed. The *Casa Grande* of the "Lord High Commissioner," large as many a summer palace in Europe, looked abominably desolate, and though the place is still a "chapelry" the little steeple is shored up. The arched gateway of stone, the eastern limit of the mine proper, still stands, but

the changing-house, where men shifted their garments, has melted away.

Contrasting with all this ruin was the prodigious vitality of nature. A fig-tree sprang fresh and green from the very middle of a slab* that might have made a table for Titans or a sarcophagus for Pharaohs. It was of regular shape, some 60 feet long, 15 broad, and about 4 in height; its material was iron and hard laminated clay. This "Baron's stone" should not be a "sine nomine Saxum." Another tree, a Canella (*Laurus atra*, one of the Laurineæ) has been allowed to remain near the entrance of the mine. The late Barão de Catas Altas used in his days of poverty to make it hold his horse, and, when the property became English, he requested that it might be spared.

We then passed down the beautiful vale of the Gongo Soco rill, some 4 miles long by half that breadth. On the left or north was the wooded range of Tijuco, highly ferruginous and auriferous, in fact, the mother of the gold. To the right was the stream valley, and my friends pointed out the place whence the deep adit for draining the mine should have been run up to the level of the Casa Grande. The bottom is garnished with timber and tree mottes; the undulating grassy sides show stones cropping out to the west; the upper heights are studded with thin Cerrados, and the picture is set in a semicircle of mountains.

Another turn to the left along the hill-side showed us the Gongo River of many names. It begins life as the Socorro; it becomes the Barra de Caethé, the S. João de Morro Grande, and lastly the Santa Barbara, where it joins the great Piracicáva, and feeds the Rio Doce from the west. Up its valley we see the scatter of houses forming the Taboleiro Grande village, and higher up the gorge is the old settlement with the chapel of Socorro, after which its grotto is called. The stream threads like a silver wire a black bed of degraded Jacutinga. Beyond it a white road winds up a block of hills to a mountain-tarn, known as the Lagóa das Antas. The lakelet is described as being without issue, shallow around the margin, and deep in the centre; its tapirs (antas) and caymans were soon destroyed by the miners who repaired there to

* Here called Lápa, which generally means a cave. It is our leh or lech, as it occurs in Crom-leh, the crumpled or crooked

stone; and in this part of Minas is generically applied to hard clay-slate.

wash their stolen gold, but it still contains leeches, somewhat smaller than those imported.

We were waxing tired after our long day of mist, drizzle, sunshine, and many emotions: the air became biting, and my wife declared that she held the halting place to be a myth. Still, long as the poplar avenue of the old French posting road, the path straggled over a soil of iron on the left bank of the Gongo River. At 6 P.M. we reached our destination, the Fábbrica da Ilha, which belongs to Sr. Antonio Marcos the Ranger. His son-in-law, Sr. João Pereira da Costa, received us with the normal Brazilian hospitality, and lost no time in supplying us with what our souls most lusted after, supper and sleeping gear.

I collected from Mr. Gordon and others the following items of information about the mysterious Jacutinga.*

The name is evidently derived from the well-known Penelope† called Jácu-tinga (*P. Leucoptera*) from the white spots upon its crested head and blue-black wings. This substance of iron-black, with metallic lustre, sparkles in the sun with silvery mica; the large pieces often appear of a dark reddish brown, but they crumble to a powder almost black. The constituents are micaceous iron schist ‡ and friable quartz mixed with specular iron, oxide of manganese, and fragments of talc. Pieces of the latter substance, large enough for small panes, occur in blue clay slate. The floor rock at Cocaes is fine micaceous peroxide of iron (specular iron), thin and tabular. This has never been reached at Gongo Soco, and the foot-wall is still unknown. It may be specular iron, for oligistic matter is found in small portions, and was stamped for free gold.

Much of the Jácutinga is foliated, and forms under pressure spheroidal oblong crystals never found perfect. It shows great differences of consistency; some of it is hard and compact as hæmatite, and this must be stamped like quartz. In parts it feels soapy and greasy, not harder than fuller's earth; it is easily wetted

* I have reason to believe that there are formations of Jacutinga in Habersham County, and about the north-east corner of Georgia.

† This handsome and fine-flavoured game bird is of many varieties, especially the Jacussu (big) the excellent *J. pema*, dark, which Prince Max writes Jacupemba, Penelope Marail, Linn., and *J. Cáca*, the smallest.

Ferreira says the Jacu-tinga (white) is "de cor preta," but with white spots upon the wings and head.

‡ Mr. Walsh applies the term "formação preta" to this gangue, but the Brazilians do not use the expression. He also calls Jacutinga "*Corpo da formação*," a term used rather in diamond washing than in gold washing.

and pulverised, but it is hard to dry. Its gold is readily separated by washing, and it is purified with nitric acid. The whole body of the lode is not worth removing; it is therefore best worked in underground galleries. The lines and veins are followed with pick and without blasting; their contents supply a soft and crumbling iron ore, which requires little stamping, and the "line gold" thus procured is of superior quality. Often by following the filaments which radiate to all directions from a common centre, the miner finds a nucleus or nugget of large size, but inferior in standard to the line gold, and losing more in the smelting-pot. The carat at Gongo Soco was 19—20. Some describe the gold as dark yellow with palladium, others say that it was deeply tinged with iron and coloured like lead. I have seen it of a bright brassy tint, and sometimes dingy red like worked unpolished copper.

Gongo Soco evidently "gave out" because men knew all about Jacutinga. But in this mine the gold was free and the plundering was enormous, some say to the extent of one-half the find. Tales are still told of miners going out on Sundays carrying guns filled with stolen ore, and the tin biscuit-cases that came empty into the mine sometimes took out from it thirteen pounds of the precious dust. There is yet much treasure hidden, and at times the lucky ones find little fortunes in pots and bottles. Gongo Soco is explained to mean "the gong, or bell, sounds not." Brazilians translate it "Escondrijo de ladroes"—den of thieves.

CHAPTER XXXI.

TO CATAS ALTAS DE MATO DENTRO.

E onde, estulto Velho, onde acharemos
O céu de Nitheroy ? As ferteis plagas
Do nosso Parahyba ? E as doces aguas
Do saudoso Carioca . . . ?

Confederação dos Tamoyos, Canto IV.

WE slept comfortably at the little fazenda. It was the usual country abode, a ground-floor used by negroes and animals, a wooden staircase leading to the "sála" or guest room, and behind it the gynæcium and kitchen, which are forbidden ground, the sancta of the Dona. The front room is furnished with a wooden table, always six inches too tall, a bench or two for the humbler sort, and a dozen chairs with cane backs and bottoms; these are famous for wearing out overalls, and are instruments of torture to those who remember the divan. The paperless walls are adorned with hunting trophies, weapons, horse-gear, prints of the Virgin, the saints, early Portuguese worthies, the siege of Arronches, and Napoleon Buonaparte; sometimes there is a mirror and a Yankee clock, long and gaunt; in the wild parts there is a portable oratory, a diamond edition of a chapel, two feet high, lodging proportional patron saints, prints, flowers, and bouquets; they defend the small sums and little valuables entrusted to them by the owner. In the carpetless corner there is often a large clay water-jar with a wooden cover, and a tin pot, the drinking fountain. The family sleeps inside, the bedrooms of the guests open upon the sála: these windowless alcoves—light not being wanted at night and during the siesta,—are exactly what old Rome bequeathed to her daughters, Portugal and Spain. Each has one or two cots,* bottomed with rattan, hide, or board, and mattresses stuffed with grass or maize leaves. The bed-

* Here called "Catre," evidently a corruption of the Hindostani khatli.

clothes are generally good, always clean, and the pillow-cases are edged with broad pillow-lace. The dining-room is often in the body of the house, where the feminine portion, congregating behind the doors, can observe the stranger without being seen. One of the peculiarities of the table is the absolute necessity of a table-cloth; even if you are served with a mess of beans upon a travelling box by a negro host, he will always spread a napkin. The other is the presence of a tooth-pick holder of quaint shape, which exercises much small German ingenuity. Our country people often leave home with a mighty contempt for the cleanly "palito,"* which they amusingly term a dirty practice. In a few months, however, they discover that it is indispensable in the Tropics, but not having learned its use, they are by no means pleasant to look upon whilst they use it. When the fazenda is on the ground floor, the sala is a place of passage for vermin-bearing sheep and goats, poultry and pigs; such was the Irish cabin of the last generation, and the richest proprietors care little for this nuisance, which the juniors and the seminude negrolings delight to abate with sticks and stones.

Altogether the small fazenda lacks many things desirable to the comfortable traveller. But in its roughness there is a ready hospitality, and, if the master be a traveller or an educated man, a hearty good will and a solicitude about the comfort of his guest which I nowhere remember except in the Brazil.

Next morning we inspected the Fabbrica furnaces. On the right bank of the Gongo River there is an outcrop of sandstone slanting westward and roofing the Jacutinga, which can easily be made either into pig (cast iron) or bar (wrought iron).† There is a marvellous richness of this material, which reminded me of Unyamwezi in Inner Africa; it extends for leagues over the land, and Martius and St. Hilaire agree that this part of Minas is, as Pliny said of little Elba, inexhaustible in its iron. The mineral here contains from 50 to 84 per cent. of pure metal, and that which we saw worked gives 60 per cent. What would it pay in England, which must remain content with 20 to 35 per cent.?

* Palito, the little wood, the tooth-pick.

† "But it appears that the carbon here always escapes in the first instance (?),

leaving, as Mr. Baird says, a very fine malleable iron behind, superior to any he had seen in the furnaces in England." Mr. Walsh (ii. 206).

The inner Brazil preserves the Catalan, or direct process of treating the ore by single fusion, now obsolete in older lands. Even the Munjólös* in Western, and the Maráve savages in Eastern, Africa, have improved upon it by adding a chimney for draught, a rude kind of wind-furnace.† Here the forge is a rough bench of masonry, ten feet long by two in height, and containing two or three funnel-shaped basins one foot in diameter, and open at the bottom before and behind. In the rear are the twiers or tuyères, the draught holes for the cold-water blast; a small stream falling through a rough tube forces the air into a wind-pipe and drains off below, whence it passes to work the forge-fire and the tilt-hammer. Unfortunately the blast cannot be controlled. The ore is broken into pieces about the size of a walnut, without previous roasting or sifting, and is mixed in the proportion of one-third to two-thirds of the charcoal, rudely measured by a basket; this mixture is placed in the furnace-basins, which are previously heated, and at times charcoal is added. As the iron melts it sinks, and the slag and other impurities are removed through the front holes opposite the twiers. The negro in charge attends to the fire, stirring up the mass from the top with a rod or poker, and he knows that the melting process is complete when the thick smoke and blue flame have changed to a clear white blaze.

The side opening at the bottom of the furnace-basin, which has been banked up with fine charcoal, is then cleaned, and the workman, with a pair of tongs, pulls out the "bloom" ‡ or "boss." It is chilled rather than quenched in a large water-bowl containing a layer of charcoal ashes, and now it has the appearance of an amygdaloid, the raisins of the pudding being the half-burnt fuel. The clinker is rejected, but there is no puddling to get rid of the abundant sulphur. This mineral will disappear under the hammer, showing how tenacious is the ore; an inferior quality would split. But also the wood charcoal, combining with the iron, has made a kind of steel; were sulphurous coal used with such a process, the produce would be almost worthless.

* See Chap. 24.

† A drawing of the Maráve forge is given in "O Muata Cazembe" (p. 38), the diary of the Portuguese Expedition of 1831-2 (Lisbon, Imprensa Nacional, 1854). We can hardly wonder, however, at the rudeness of the Brazilian process. In co-

lonial days the people were forbidden to melt an ounce of iron: they walked upon it, but they were compelled to import their metal from Portugal.

‡ This lump of malleable iron is generally called a bala, locally a "lupa."

The last operation is now to place the "bloom" under the tilt-hammer, where it is dolleyed and stamped into the shape of a brick. No refining process is attempted beyond simple reheating to expel impurities and increase the hardness; it is then replaced under the hammer and drawn out to the required scantling. It goes to Morro Velho in bar, to be used as boyer iron. I have already remarked how it lasts out the stamps of English steel. But the rudest and simplest process suffices for such excellent ores—witness the Damascus steel forged by the rude Hindus in the hill-ranges of Bombay. Here an evident and easy improvement would be to build a stack or even a cylinder over the basins, and thus to heat the blast. It will be long before these men will be persuaded to employ the newly invented system of electro-magnets.

After an ample breakfast we struck down the River Valley, guided by Sr. da Costa; it was adorned with beautiful figs of the coolest and most refreshing green. On our left was a tall, turret-like outcrop of granular limestone mixed with "lápa," a hard clay slate. The mine was in a disordered condition and uncrystallised; in one place a horizontal vein cropped out from the main body.* Beyond this point the coarse ferruginous soil was a rabbit warren, burrowed in search of gold, now exhausted. Crossing the Gongo River, we rode up the one street of S. João do Morro Grande, whose newly finished Matriz, with the pepper-box and round-square belfries, we had sighted from afar. It is, comparatively speaking, an old place, and was raised from villagehood to parochial rank by a Royal Letter of January 28, 1752. The Serra de Cocaes, tall, stern, and cloud-capped, walls the left side of the valley, and on its slope is the little Gamelleiras Mine, working nine stamps, and belonging to the Capitão José de Aguiar and the Coronel Manuel Thomaz and brother.

It is curious to see how the soil near the stream has been tossed and tumbled about during the last 150 years; the present population could by no means have done it. "Hydraulicking" on an extensive scale was shown by long lines of leats, running

* Here Gardner (p. 494) was misled by M. von Helmreichen, who made the Serra north of the Gongo Soco Mine to run east to west, and to be "of a primitive character,

the mass of its centre consisting of granite." Upon this he places schistose and clay slate, cropping out at about 45 deg.

along the hill-sides like the river beaches and the parallel roads of often-quoted Glen Roy. Above them mines and diggings, deepened by the rains of many a summer, have been cut into Vesuvian cliffs and craters of red clay.

We passed through the little village of "Capim Cheiroso,"* whose "fley-craws," wind-worked figures on tall poles swinging their arms to frighten away birds, suggested the presence of Swiss. Beyond it is the São Francisco settlement, where three streamlets meet; near the junction are a little three-windowed chapel and a wooden bridge with a stone pier in mid-stream. The path ran up the pretty river plain, bright with sugar-cane, on the right bank of the Brumado stream. It had a look of home; the rivulet was, without overflowing, full—in these lands such streams are either o'erflowing or underflowing—and on the further bank wintry broom rose naked in the air. Reaching the much decayed village of Brumado, we saw on the left the road leading to Santa Barbara and the Pári Mine,† and we turn rightwards to the great house of Commendador João Alves de Sousa Coutinho. The retired courtier, a favourite of the first Emperor, gave us a hearty welcome and pressed us to stay.

Here we are close to the property of the Santa Barbara Gold Mining Company (Limited), of which a section of the public has assuredly heard. It was formed in 1861 to buy an estate and fazenda called the "Pari Gold Mine," or "Pari Lode," in the district of Piracicáva, parish of S^{ta} Barbara,‡ from which it is distant about six miles. Its owner, Coronel João José Carneiro e Miranda, had long offered it for 5000*l.*; it was purchased for 12,000*l.*, two-thirds in cash and the remainder in shares of 1*l.* each. Moreover 18,000*l.* were expended upon getting the mine into profitable working order, upon an adit for unwatering, and upon a new stamping mill of seventy-two heads. Thus the total outlay was just half the capital, 60,000*l.*

The proposer, who visited it in 1855,§ gave it a good name in

* "Sweet-smelling grass," a *Cyperacca*, *Kyllinga odorata* (Syst.).

† "Pári," pronounced much like the French Paris, is a fish trap.

‡ S^{ta} Barbara, upon the western head waters of the Rio Doce, is said in the reports to be 14—15 miles due east of S. João do Morro Grande, 20 miles north by east from Gongo Soco, 24 miles from Cocaes, and

54 miles north-east of Morro Velho. According to St. Hil. (I. i. 214), who writes "Percicaba, or piracicaba," the Guarani words "Pira cy cabá" appear to signify "shining black fish."

§ In 1850, Dr. Walker reported that the lode resembled that of Morro Velho; that it was worked underground, but only by day, and that the ore was stamped,

his report. The lode, hornblende, quartz, and arsenical pyrites, ran north to south, parallel with the clay slate containing rock.* At grass the width was 3—4 feet, but below it widened to 7—13. It has been worked to 100 fathoms, but the level was shallow, hardly 80 feet, and the only pump was a hand-pump. The auriferous yield was to be upwards of four oitavas per ton. By way of refresher, in April, 1863, a report by an ex-miner of Gongo Soco, who had thirty years' experience in Brazil, was sent home; the worthy man assured all shareholders that the former proprietor, despite his "crude, imperfect, inefficient, and therefore costly development," had realised a very handsome property. Corollary, what a fool he was to sell it! Moreover, the principal agent, whose son was also one of the mining captains, reported that he was making five oitavas per ton; other information was equally favourable, especially when volunteered by those who had local interests, such as a store, or a shop, to supply rose-coloured specs.

On the other hand, facts were unreasonable enough to prove that the hornblende which predominates over the pyritic formation, though represented to be easy for boring, is an extremely refractory substance, making the quarrying very difficult, and neutralising the auriferous properties of the quartz. After six years the agent withdrew. The works are now in the hands of an ex-mechanic, two English miners, and a very few free Brazilians. The slaves have been given up, and—sic transit gloria Sanctæ Barbaræ! But she may become rediviva; in such matters "impossible" must be erased from the dictionary; and I have heard rumours that she is to be set on her feet once more.

After eating oranges and drinking orange-wine, we bade adieu to the Commendador, leaving with him that extremely *entêté* Mr. Brown. A cross road to the west of the highway led up a short river valley with a charming "bit of view," crossed a "mud" or two, and placed us upon the open sunny Campo. I always return to these pure and airy downs with pleasure, especially after a spell of the "shut forest." Travellers complain that they are monotonous, but that depends upon the traveller. As in the Arabian desert, objects are few, except to those who know

passed through arrastres, and straked in the usual way.

* The underlay is stated to be 54°—55° east.

where to find them and how to look for them. And there is nothing unsightly in the long rolling waves of ground, dotted over with the yellow apple of the Juá, the black woods in the lower levels, and the gradual sinking of the foreground into a smooth horizon of the purest blue.

Here for the first time rose high before us the Serra do Caráça,* more politely called da Maã dos Homens. We had turned its northern bluff without a clear prospect of its form, and we shall almost circle round it before we return to Morro Velho. Though it was so long in sight I was never weary of gazing upon it, despite the sage,

Nil tam mirabile quidquam
Quod non minuant mirarier omnes paulatim.†

It is a grisly spectacle, that Big Face, a huge mass of iron slate towering several thousand feet † above the high downs. Its features are grotesquely seamed and dyked with broad and narrow bands of quartz ‡ standing out from the dark Itacolumite, and in places there were long vertical shaves of blue-black Jacutinga underlying the hard intercrust of mica slate. After yesterday's rain the ore had been washed out of the joints, making the slides and precipices look as if molten silver were flowing down a mountain of moulded iron, a grisly casting that disdains to show a sign of vegetation, and which seems to stand as if defying the elements for ever. The southern end, where the strata are almost perpendicular, assumes the appearance of a rhinoceros head; nor are nasal horns wanting, the softer parts of the stone have scaled off, leaving a jagged line of tall pikes, like the "organs" of Rio Bay. Looking at it, as we do, from the west, it proclaims its inaccessibility; it is the wall of iron which Sikandar of Rum built against Yajuj and Majuj at Darband.

* Caráça is explained in Portuguese as Carranca (tetricus vultus) de Pedra (Voc. Port. & Latin of Padre Raphael Bluteau, 10 vols. folio). The word is feminine, but always takes the masculine affix, "O Caráça," the ugly face. This confirms the legend which derives its name from some pongo-faced negro, Quilombeiro, who first lived in its horrid heights. Mr. Henwood erroneously calls it "the Caraças." Mr. Walsh (ii. 312) is worse still: "Another was called 'Serra da Cara' from its likeness

to an enormous visage." St. Hil. (I. i. 218) observes that the word is at once Portuguese and Guarani. In the latter tongue, Cara and haça, or Caaraçaba, corrected to Caráça, mean a defile.

† Some say 3000 and even 4000 feet. St. Hil. (I. i. 285), who ascended the highest peak, lays down the height at nearly 6000 feet above sea-level.

‡ Mr. Halfeld informs us that the Caráça contains muriate of soda in the strata of Itacolumite.

This "Big Face Mountain" is the very pivot and centre of the mid-Minas gold mines, especially the pyritic formation: open the compass to a radius of $0^{\circ} 30'$, sweep round, and the enclosed circle will all be more or less auriferous. The Serra was examined botanically by Spix and Martius, followed by St. Hilaire: heavy rains kept Gardner away. Mr. Gordon ascended by the southern face, and found a dangerous road, with round rolling stones, over ledges and along precipitous chasms: the pass by Alegria on the south-eastern side is also bad. The best approach is from Brumado, which we have just seen, and up the easier northern slope. On the summit is a plateau of some three square miles, soled by a swamp which dries up in winter; around the margin of this water European vegetables grow to perfection.

As usual with remarkable mountains in Minas, the Caráça was long a hermitage where life must have been lively as that of a lighthouse-keeper thirty years ago. A chapel in which mass was said for fifty miles round,* was begun in 1771, and dedicated to *N^a S^a Mã dos Homens*. Near it was a monastery occupied by a brotherhood of eleven. The works were all made by a certain *Irmão Lourenço*, who belonged to the regicide house of Tavora. His portrait is still in the College, and he is remembered as a most worthy man who did not "make fire in the sea." He lived there till past 1818, and at his death left to the king his hermitage, which became a seminary. The congregation of the Mission of St. Vincent de Paul was presently established by Padre Leandro Rabello Peixoto e Castro, in virtue of the Royal Letter dated Jan. 21, 1820. It languished till the present Bishop of Marianna, who had been one of the lecturers, returned to it as Principal, and found there very few pupils. The diocesan collected funds for a little church and altar-stone to admit of the place being consecrated; and the excellent prelate intends, it is said, to be buried in it. The now well-known theological college occupies a secondary ridge on the north-west part of the plateau, and when residences were built the Propaganda sent priest-professors. The Principal is M. Michel Sipolis, who has temporarily returned to France; the Vice-Principal was his brother M. François Sipolis,

* So says Henderson, writing in 1821. In 1831, St. Hil. (I. i. 220) described the mountain plateau, which he visited in

1816; he also mentions "Frère Lourenço."

whom we shall frequently meet, and there were three other ecclesiastics, all well-educated men.

Our track lay up and down hills of yellow clay, thinly greened, and presently we fell into the Santa Barbara, or main road that leads from Ouro Preto to Diamantina. This, the most important line of communication in the Province, appears hereabouts a respectable highway; near the City of Diamonds it will become detestable. On the right was a ranch whose palms, coffee-shrubs and bamboos, larger than usual, argued a warmer climate.

Approaching a well-bridged stream, the "Ribeirão da Bitancourt," we saw from afar a phenomenon that puzzled us. At length, straining our eyes like so many D. Quixotes, we distinguished, not windmills, but a cavalcade of eleven Sisters of Charity in gull-wing caps, mounted on poor hack-mules, and travelling, like Canterbury Pilgrims, in single file under the escort of two priests. They had been sent from the Laranjeiras establishment at Rio de Janeiro to found a branch house at Diamantina. We halted and addressed mes sœurs: unfortunately, the only pretty Sister, who, moreover, sat her horse well, and who wore a neat riding-skirt, went forward, and would not join in the chat. M. François Sipolis, carrying his full-grown metal cross, was in command of the detachment, and recognised Mr. Gordon, and the Sisters my wife; loud and hot were the greetings. This priest, still young, had come to the Brazil in his salad days, and he has perhaps been too long here: I could hardly tell his nationality. The rear was brought up by a youth in soutane, with sallow greenish skin, and apparently a double supply of eyes, behind and before: he most diligently perused his breviary, while he took inward stock of everybody and everything. Thus, the King of Dahome's system of duplicate officials is not always despised by the civilised and the Jesuitic order touching the mission of their "apostles." *Misito illos vinos* is still carried out in the Brazil. I engaged myself to meet M. Sipolis at Diamantina: we then shook hands and parted *à l'aimable*.

After long sighting the grassy slopes below the settlement, we crossed a "lavapés"* in the shape of a bright little stream flowing

* "Wash feet." This name is given to the little stream nearest the settlement. It reminds one of olden Tuscany, where the peasant girl carried her shoes and stockings

in hand till near the town, when she washed off the mud, and appeared in public like a "respectable person."

over its black Jácutinga bed; it rises in the Caráça, and forms one of the head waters of the Rio Doce. Our hoofs clattered loud over the rugged pavement of the silent "Catas Altas," called "de Mato Dentro,"* although the forest has long ago been cleared away. Mr. Gordon had sent his man forwards, and we found all prepared at the "Hotel Fluminense e Bom Pasto Feixado,"† kept by the Lieut.-Colonel João Emery. The son of English parents, and thoroughly John Bull in burliness of look, the host could speak only Portuguese. As he explained himself, the face was British, but all the rest was Brazilian. It too often happens in this Empire that the father and mother become accustomed to talk their mangled Lusitanian en famille, and thus the children, with the harsh features and the freckled faces of the far north, cannot answer the simplest question in the language of their ancestors.

From the hotel we could easily see the diggings in the eastern cheek of the Caráça. The upper stratum is a rich ochreous clay some twenty feet deep, overlying fine micaceous slate, that rests upon compact magnetic iron, and the latter has always been found in far greater abundance than gold. In the lower beds run the veins of ferruginous quartz which used to be split with fire and stamped for precious metal. The eye chose out three huge excavations resembling craters and ranged in line, duly flanked by two Casas Grandes. The easternmost is the "Pitangui,"‡ the Lavra do Padre Vieira, which belongs to a Brazilian association and by which flows the "lavapés." Next to it is Boã Vista, the Lavra do Francisco Vieira, brother to the padre; it has lately done a little business; and further on is an old houseless pit called "O Machado." Besides these, the Brumadinho, the Bananal, and the Durão, are spoken of by the people. They were mostly worked out before 1801, and mining enterprise is now far beyond the local purse. All supposed that we were going to buy, and whispered, with the bated breath of a London police magistrate fresh from Rome, the vast riches hidden in the mountain's lean bowels.

* Thus distinguished from Catas Altas de Noroega.

† The Minas pronunciation of "fechado." The first thing done by the sensible traveller on arriving is to ask and look after the pasture. If he wishes to make an early start, he must always place

his beasts in a "close pasture," where ditch or palings prevent their straying.

‡ Some say that to the east of the Pitangui and the Morro de Agua Quente, is "Cuiabá," a mine worked by the Gongo Soco Company when their head-quarters began to fail.

Whilst dinner was being served up, we easily visited the town, which dates from 1724: since its mines failed it has become very poor, and the inhabitants support life by corn-growing and cattle-breeding. These simple and innocent occupations, Georgic and Bucolic, ought to make them happy; they look downcast as Melibœus or Corydon, and, as their dull lives are hardly worth keeping, they live long and die hard. The single street has, besides the Matriz N^a S^a da Conçeição, three chapels, a Rosario, a S^{ta} Quiteria, and a Bomfim. The porticoed mother church, which fronts a neat sloping square, is abundantly painted; even the balustrade round the tower is a deception not likely to deceive. The interior is quaintly and curiously ornamented with old twisted pillars, and, a novena being in prospect, cut and coloured paper extended from floor to roof. The rotulas* and balcony of the vicar, Padre Francisco Xavier Augusto da França, were crowded with ladies preparing for the festival. His reverence told me that he was entering his eightieth year. Why is it that after seventy a man must tell you his age inevitably, as if he had shot the albatross? He spoke of a parishioner who had lately died æt. 119, and he estimated his cure to extend over 3900 souls, of whom some 490 only were slaves.†

* The old wooden lattice work which formed a kind of hanging closet outside each window, and sometimes extending along the house face. Being handier than even an Affghan "Sangah" when a quiet shot was to be fired, they were suppressed

in 1808, when the Court of Portugal changed quarters from Lisbon to Rio de Janeiro.

† The Almanack of 1865 believes the slave population not to exceed 488.

CHAPTER XXXII.

TO MARIANNA.

Torrão que de seu ouro se nomeava,
Por crear do mais fino ao pé das Serras ;
Mas que feito em fim baixo e mal prezado
O nome teve de "Ouro Inficionado."

Caramurá, 4, 21.

THE night was exceptionally cold, we slept soundly, and on the next day, a harmless Friday, we were on foot at an hour when the humid darkness seemed to be

Almost at odds with morning, which is which.

Instead of making "Inficionado" by the direct road to the south-south-east, we were to cover an equilateral triangle of twelve miles to "Fonseca," where the combustible matter is, and then to make our nighting place, as much further.

We resumed the Campo road, and after two miles with a few rough ascents and descents, we reached the little village Morro d'Agua Quente. While fording the streamlet, we were shown an island in which an English miner was buried. He had pledged himself to unwater the Agua Quente mine, and had set up some fine pumping gear, eighteen inches in diameter, made of wrought-iron plates from home. But even these failed ; he redeemed his word like the last of the Romans, by going to Kingdom Come. "There was," said the satirical Mr. B., "but one honest Cornishman in Minas, and he—went and hanged himself."

Mr. Gordon had some business to transact with a decent Brazilian body, the widow of an Irishman employed at Morro Velho—his other five relicts are not so easily managed. Meanwhile we put up at a little tavern kept by Sr. Leandro Francisco Arantez, an energetic young man who has a concession for working the seam which we had come to see. The Province is

thoroughly alive to the necessity of supplanting seaborne coal by Brazilian, and has offered £2000 for the discovery of the grand desideratum. Sr. Arantez showed us with just pride the gold medal which had been conferred upon him in 1863, when he hit upon the doubtful substance: the reverse showed the head of H. I. Majesty, and *Benè meritum premium* was on the obverse. He told us his many troubles, how the people had discouraged him in every possible way, and had named his *trouvaille* “*raiz de páu*”—tree root. So in the Province of S. Paulo, when, at the end of the last generation, certain innovators proposed to abandon the valueless sugar growing, for coffee, they were derided as “planters of fruit.”

Agua Quente—hot water—derives its name from a thermal spring, which was covered by an earthslip. In 1825, Caldeleugh spoke with an old man who remembered drinking “*agua morna*,” lukewarm water, but he did not remember if it had any smell. Others declare that the heated element once appeared in the mine. As usual, the village has decayed, together with the cause of its origin: it has 68 houses within reasonable distance of one another. The Company’s old store still exists at Bananal, near *Agua Quente*, but no work is done there. Above the mine is a peak, known as *Morro d’Agua Quente*, and from this our destination, “*Fonseca*,” bears due south-east.

Accompanied by Sr. Arantez, we ascended a very steep hill that placed us upon the *Chapada*. Here the ground rang under the hoof as if iron plated; in places it sounded hollow, suggesting that the thin crust might easily cave in, and such hereabouts is the formation generally. The appearance of the mineral reminded me of the laterite in Malabar and Western India, but here it is the richest hæmatite. Dr. Couto found the village of *Agua Quente* built upon immense deposits of copper; sheets of the red variety, chequered and sprinkled with the ashy mineral, forming a chess-board of pleasing appearance. To the left was the *Serra da Batêa*, a southern butt-end of the great *Serra do Frio*.* On the right, and falling to the rear, looking exceptionally ribby, rose the peaked mountain, *Caráça*, down which the dangerous road is seen to wind.

Passing a small *fazenda*, “*do Moreira*”—not to be confounded

* This must not be confounded with the *Cerro do Frio*, further north, around the city of *Cerro*, or *Serro*, the old *Villa do Principe*.

with the Freguezia of Paulo Moreira, twelve leagues from Gongo Soco, a little south of east—we found a basin separated by a “knife-board” from one contiguous; both are gentle hollows of considerable size. The easternmost showed at the side a small winding stream, the young Piracicáva, and on its bank lay Fonseca, a chapel and scattered huts, like a new mining locality. Around, the land looked dry and sun-burnt: the dead brooms and withered ferns covered in patches hundreds of acres, and their dull sombre brown-grey will darken the brightest and cheeriest landscape. This is a sign of a dry porous soil: the tender root of the Samambaia* cannot penetrate the tough clay. In the Brazil, where the fern is supposed to follow overfiring and exhausting the ground, when once it has taken possession the case is hopeless. In New Zealand the clover kills the fern as the white man’s rat destroys the native rat, and the European fly drives away the Maori fly: perhaps it would do so here. Now, the sole precaution is to cut the plants before they branch, and to let beasts graze upon the roots, as we do in England. In the Brazil, as in Tibet, peasants eat the young shoots of a kind of fern (“Samambaia do Mato”): M. Hue compared it—height of imagination!—with asparagus.

We descended to a “gulch,” in which there is a little stream, the Córrego de Ogó,† and the opening faced north-west by north. This is the place where the coal was found, accompanying sandstone-grit and hæmatite. The dip of the rock is 70°; the strike is west-south-west, and the cleavage planes are as nearly as possible east to west. The water, as usual, here showed signs of iron, and carbonate of lime appeared in the eastern wall, where drops had trickled down. We found the same formation higher up, and our guide told us that the coal was also in the Valley of the Piracicáva, and in the western basin by which we had ridden. We traced it a few yards down the Córrego, a ferruginous rill, which, after two miles, falls into the Piracicáva. Here also was a quartzose and pyritic rock, which had given gold. The precious metal was, however, “muito fi-i-i-no,” as our com-

* Older writers prefer the less euphonic Sambambaia, and Sambambaial, a (natural) fernery. From one of these ferns (Mertensia dichotoma), pipe stems are made, and fixed to a little head of black clay.

† Ogó is described to be a base yellow

metal found in sand, and used to falsify gold. Others tell us that it floats in water, and is therefore probably mica, now called popularly “Malacacheta.” St. Hil. (l. i. 341), speaks of a “sable brillant appelé Ogó qui se trouve du côté de Sabará.”

panion said, raising his voice almost an octave, to denote the superlative of fineness, that is to say, of minuteness.*

The combustible appears in small pieces and broken layers much mixed with clay and sandstone: we did not find a single block. It was mostly transition lignite, or brown coal, known in S. Paulo as "tipota:" distinctly modern, ligneous of appearance, and burning with the smell of wood. Other pieces from the same locality are smooth and black, like obsidian or sealing-wax, conchoidal in fracture, highly inflammable, and giving out thick smoke and gas in quantities. It is, in fact, our cannel coal, and it will be found useful when the old reverbere and the kerosine are clean forgotten. I recognised the formation, having already examined at the Fazenda of a certain Dr. Rafael, near Old Caçapava, in the Valley of the Parahyba River, Province of São Paulo, a very similar basin, whose lignite overlies cannel coal: here, however, at a greater depth, occurs anthracite, a veritable black diamond which does not soil the fingers, and which burns without smoke. Before working these places, the main consideration is whether the formation be sufficiently extensive to pay: the exploratory works should certainly not cost more than 200*l.* In Minas I nowhere observed the great deposits of sulphurous or bituminous shale which occupy the Valleys of the Southern Parahyba and the Upper Tiété, and which will some day supply the land with petroleum. These must be sought further east, and they will probably be found upon the lower courses of the Rio Doce, the Mucury, and the Jequitinhonha or Belmonte.

We then rode up the rough western wall of the eastern basin, and met with water everywhere, even near the top. This is a common feature both in Minas and S. Paulo; the stranger is often surprised to see a crystal spring welling from the brow of a hill. The only trace of game was the "Frango do Campo," or Prairie Chicken, plumed like the water-rail, short-legged, and to be mistaken for a young hen that has escaped from the poultry-yard. The Siriéma, or Serpent-bird, ran before us in the path, and represented the turkey.

At the Fazenda do Moreira, Mr. Gordon bade us a temporary

* This custom, very general in the Brazil, probably descended from the aborigines, who expressed the superlative by intonation. St. Hil. (III. ii. 62), says that "Ouro

fino" denotes "la belle qualité de cet or:" it may have this signification, or that given in the text.

adieu : he was to regain Morro Velho viâ Agua Quente, whilst we intended to sleep at Inficionado. We descended a long hill, passing near the bottom-water a small iron foundry, and by a tedious ascent we made a Chapada, which, like that of the morning, was a plain of iron, hollow-sounding as a pot. From afar we saw the curling smoke of the settlement, and the black outlines of "Cata Preta,"* which was worked to little purpose by the Gongo Soco Company, and which now belongs to the Commendador owner of the mine. Then we dropped into a deep road, a hollow way, like the lanes of fair Touraine, once so familiar to me, and presently below us flowed the river, broad and clear, crossed by a tolerable bridge. We lost no time in transferring ourselves to the hostelry of Sr. Francisco Cesario de Macedo, at the southern end of the village.

During the evening we walked out to see the "parishry of Na S^a de Nazareth do Inficionado"—of the Infected (gold). The cognomen was given because the metal at first seemed excellent, but presently showed the cloven foot. The "Infected" is now the usual long, wretchedly-paved street or rather section of high-road, whilst horse-shoeing and grain-selling at a dear rate to bezonian travellers appear the principal industries. A dry chafariz fronts the matriz, and there are two chapels, but never a priest; on the other side of the Piracicáva, a thin scaffolding still surrounded the tall black cross, which was being duly armed.

The fashionable skin was a sallow brown, and people showed a mixture of races, with much inter-marriage. Cripples and beggars were unusually numerous. I saw two cases of hydrocephalus, one with soft the other with hard head; both creep upon the ground, and have forgotten the use of their "immortal souls." At Barbacena the mouth is worn open; at S. João the tongue is slightly protruded; here the villagers "made at us a pair of eyes" and laughed in our faces the laugh of semi-idiotcy, whilst one of them audibly remarked that my "companion" † was "uma senhora muita capaz"—highly trustworthy. The host, however, was civil and obliging; he did not even murmur when our

* The "Black Pit."

† The Brazilian gentleman speaks of his wife as "Minha Mulher." The country people call her "Companheira." The rest say, "Minha Senhora"—my lady. So in France, the bourgeois has a dame and a

demoiselle, but no femme or fille: in the United States, not to speak of England, the hotel books abound in "Mr. A. and lady"—a useful prevarication if Mr. A. be *not* travelling with his own spouse.

exceedingly careful fellow-traveller found a sixpence wrong in the mules' rations, and with loud "blatheration" performed the operation of docking.

Cata Preta boasts of one great birth. Fr. José de Santa Rita Durão was born there about 1737; this old worthy was the son of an energetic Portuguese colonist, and he died, as poets were wont to do, in the hospital of Lisbon, 1784. During these forty-seven years he wrote a number of poems, of which the best known is "O Caramuru,"* an epic in hendecasyllabics, numbering the normal ten cantos. Had the *Lusiads* never been created, this production would have become world-famous: as it is, the echo of the older and grander strain haunts the reader's ear. Even the sententious trick of the line terminating the stanza is preserved. For instance, the exordium—

Of the stout spirit whom no toil could tame,
Nor daunt the rage of occidental waves;
Who the Reconcave,† ever dear to Fame,
Which still the haught Brazil's high city laves,
Explored; the "Thunder-Son," whose fearful name
Could rule and tame the savage Indian braves,
I sing the valour proved by adverse fate—
Who masters fortune, he alone is great.

The poem was hastily thrown off, and was printed in 1781. The Visconde de Almeida-Garrett, himself a most distinguished poet as well as prose writer and critic, says of it, "Where the poet has contented himself with simply expressing the truth, he has written most beautiful octaves, some of them even sublime." M. Ferdinand Denis, an early historiographer of Brazilian literature, declares it to be a "national epopee, which interests and excites the reader;" and M. Eugène Garay de Monglave has translated it into French. It might, I think, appear in an English dress with much judicious curtailment, and with the prosaic portions reduced to plain prose.

On the next day—a thirteenth be it duly remembered—we left *Onfionado* at a late hour. Rain was brewing in front, the effect

* A certain Diogo Alvares of Viana was wrecked at Bahia, where the land swarmed with savages: by the use of his musket he rose, like Mr. Coffin of Abyssinia, to high rank amongst them. The Indian nickname is usually translated "Man of fire:" it

properly signifies, "the electric eel." The "Son of Thunder" was the title given to Diogo Alvares, who married the "Princess" Paraguaçu.

† O Reconcavo is applied to the magnificent Bay of S. Salvador (da Bahia).

of the "Serra de Ouro Preto," which indulges in a perpetual night-cap of heavy wet. We began with the high-road, or, as it is here called, the "cart-road," to Marianna city, and we found some luxuries, such as the rivulets cleared of their large round stones. We were not, however, beyond the old wheel-tire with projecting iron knobs, which bite the slippery clay ground, and which over-work the trains upon the levels. Presently we turned into a bridle-path, exceptionally bad; our mules seemed to be climbing up and down stairs. The material is a glaring white quartzose sandstone, soft and laminated; it is easily trodden and weathered into holes and ledges. The formation is akin to the so-called Itacolomite which supplies Diamantina with its gems. There are mines around, rude diggings in clayey sand, mixed with coarse ferruginous gravel and debris from the schistose rocks of the Serra.

After an hour we descended to the hamlet "Bento Rodriguez," which lies between the forks of the river Gualaxo,* a vitreous stream in a ruddy pink bed, which contrasts charmingly with the lively verdure around. The eastern or further water, even at this season, was girth-deep: the ruins of a bridge were there, and a "pingela," which here represents the hanging bridge of Peru, showed that after rains the clear waters became unfordable. Another rise and fall led to a "Devil's Glen," a deep dark hollow, with strata highly tilted up, and a mountain burn plashing down the bottom, crossed by a single arch. About noon we reached Camargos, a small village with a stream in red sands below, and a very big church standing on a hill to pray, a veritable Pharisee. At this half-way house a little venda gave us shade; and a few words of civility and chatting about war-news produced oranges: our only expense for entertainment was 3*d.*, the cost of a bottle of cachaça. The Brazil, like Russia and other young countries, is a place of exceeding cheapness for those who live, as the Anglo-Indian saying is, "country-fashion," on beans, charqui, and native rum. On the other hand, imported articles double their London prices, and anything out of the ordinary way is inordinately expensive. Those who think that they cannot

* Gualáxo do Norte, by Henderson written Guallacho. The water is so called from a neighbouring Fazenda, and it feeds

the Rio Doce proper. We have now left the Valley of the Piracicava.

spend money here will marvel at the cost of beef-steaks and beer, fresh butter and English cheese.

Camargos—on this line towns and villages greatly resemble one another—sows and breeds like its neighbours: it has a small industry in the matter of gold, once so abundant, and it can also export iron. From this district came the tea which gained the gold medal in the Great Exhibition of 1862:* we presently saw the plantations, rather shabby below, but rich in the higher lands, fronting the Bom Retiro Fazenda. I had not met with the shrub since leaving the Province of São Paulo, and it was the face of an old friend.

Ascending the Morro da Venda da Palha,† we enjoyed a noble view of enormous extent. To the north, under “a sky of wondrous height,” rose the peak of “Itabira do Mato Dentro,” a mere knob rising from the horizon plain, and distant, as the crow flies, forty-five miles. Eastward a tall blue screen, hardly distinguishable from the clouds, denoted the valley wall of the Rio Doce. In front surged the lumpy Serra de Ouro Preto, with a red road seaming, like a ribbon, its slopes of green.

From that point all was descent. The path became worse, and the half-devoured remnants of a cow lying across the line did not speak well for the new mines. Down the ruddy slope we fell into a country of Canga and Jacutinga, like that of Gongo Soco. By degrees, the Morro de Santa Anna settlement, better known as the “D. Pedro Norte del Rey,” a complicated absurdity, opened out before us. The site is a bleak and treeless hill-side, fronting east, “rugged as cliffs on the seashore,” with its tall, naked face burrowed for gold; an ugly contrast to the picturesque approach that characterises Morro Velho. On the upper level appears, *en profile*, the chapel, a white box, surrounded by the dull clay huts of the native workmen. Below it are the hospital, the houses of the officers, the white quarters of the English miners, the Casa Grande, large, neat, and well situated, and the “blacks’ kitchen,” a tall, white tenement, bald and bare. The latter surmounts a dwarf eminence rising from the valley sole, the “Córrego da

* The only complaint was that it wanted a certain aroma. This arose from its being too new. Moreover the specimens were so scanty that they could not be submitted to sufficient test. The principal tea grower of the Province is now the Senator

Teixeira de Souza of Ouro Preto, the owner of Bom Retiro, or Fazenda do Tesoureiro.

† From Camargos to Marianna there is an older road, lying east of the line by which we travelled.

Canella," upon whose bottom land are the shops, smithy, carpentry, stamps, and other furniture. Here, too, were extensive washings made in the olden day.

Fortunately I had sent on Miguel with our introductory letter. The trooper met us before we reached the house, and now we learned for the first time that Mrs. Thomas Treloar, the Superintendent's wife, was not expected to live. She had passed thirty-three years in the Brazil, and had intended returning to an English home in June last. The "six months more" are sometimes as fatal in the Brazil as in Hindostan.

We retired from a sun "enough to roast a Guinea man," to the Venda, wretched as an inn in Styria, and considered the case. Dr. George Mockett, for whom also we had letters, was in attendance upon Mrs. Treloar; and her son-in-law, Mr. Francis S. Symons, Manager of the Passagem Mine, was momentarily expected. Nothing remained but to ride on two miles, and trust to the tender mercies of a Marianna hostelry.

We forded the *Córrego da Canella* twice, and passed over sundry hill-spurs. Here the houses thicken to a suburb, every second "ranch" shows stakes for tethering mules, and saddle-making is added to horse-shoeing. We remark that the whole road no longer presents the gloomy picture of ruins and deserted villages traced by Dr. Couto in 1801. But in those days, the mining population, mostly coloured, lingered about their exhausted diggings; now they have applied to other work. Everywhere we saw bullocks' hides stretched out in the usual Brazilian fashion upon a frame-work of sticks, the ground being too damp to permit pegging them down; thus they obtain the benefit of sun and wind, and they can easily be moved out of the rain. The skins, which in the dry season, after a few days' exposure, become hard and board-like, are used to cover mule loads by day, and to act couch at night: in the wilder parts they are the bed, sofa, and mattress, and in stools and settles they supplant the rattan.

Then we forded the "*Ribeirão do Carmo*,"* which divides the city proper from a large suburb, the "*Bairro de Monsús*:" higher up the stream there is a wooden bridge on stone piers,

* This is the River of Marianna, now popularly known as the "*Rio Vermelho*." We shall ascend its valley during the next two marches.

used during the rains. From this point is the prettiest view of the ecclesiastical capital, which reminded me of picturesque old Coimbra. The houses, here white, there red, pink and yellow, rise in steps from the right bank of the rivulet, which the poets have compared with the Mondego,* and appear based upon and mingled with rich green lines and clumps of the domed Jaboticabeira, palms, plantains, oranges, and bright-flowering shrubs.

Ascending a ramp, we left on the right the Ribeirão do Cattéte : gardens now bloom in its bed, but a long stone bridge proved that it has not always been dry. A vilely-paved street led us north-east to the Largo da Cadea, in whose centre still stands the pillory of colonial days, the first which I have seen in the Brazil. It shows the holes by which criminals were tied up, and it is surmounted by globe and crown, sword and scales, and the iron hooks to which limbs were suspended. The jail, also guild-hall, is a quaint, squat, old-fashioned building, with a complicated entrance curiously painted, and a few black soldiers were on guard. Fronting it is the Church of S. Francisco, tawdry in exterior : it is the temporary "Sé," the Cathedral being under repair. To its right is the Na^a Sa^a do Carmo, with the usual round-square or pepper-caster towers.

Evidently we are in a city which is clerical and not commercial : the dulness is that of cathedral towns generally, from Itú in S. Paulo to Durham and Canterbury before the age of railways. "Formigões"—big black ants—as the black soutane'd students are called in waggishness, stroll through the thoroughfares, and loll listless about the shops. The store-keeper leans with elbows upon his counter, and stares vacantly at the street, or muses and smokes cigarettes in concert with a friend or friends, seated upon stools nearer the door. Negro urchins squat

* Claudio Manuel da Costa, of whom more hereafter, wrote a poem upon the Ribeirão do Carmo. When Apollo had stolen the nymph Eulina, this amorous drain cursed the god : the latter, in revenge, taught men to wound the bank for gold and precious stones, and to stain the crystal current with blood. At length, the Ribeirão, mad with despair, rushed down a rock and was dashed to pieces.

Dr. Henrique Cezar Muzzio, Chief Secre-

tary to the Presidency of Minas, and afterwards of São Paulo, has presented the original of this poem, "Villa Rica," to H. I. Majesty. Dr. Claudio died unmarried, but he left nieces : the latter attempted, when the Brazil became an Empire, to establish their rights, and applied to the usual officer, the "Procurador dos feitos da fazenda." Unhappily the papers had disappeared, and the cause was lost.

upon the steps, or try conclusions with vagrant pigs and dogs, which are apparently the main items of population: one of the creatures, who certainly had not heard of Joan Dare, bawled out "Godam," as we rode by. Old black women hobbled about picking up rags and compost; and we remarked sundry white men going barefooted—a very unusual spectacle in the Brazil. Here and there a profusion of straight, glossy and well-greased hair, with a bright red blossom on the left side of the head,* and a face of very mixed blood, engaged in the "serious study of street scenery," inform the practised eye that, as might be expected where young men are "reading for the Church," Anonyma is as well known as to those who "live at Gondar."

Descending into the Largo da Praça, a grassy square, sloping eastward, we came upon the Hotel Mariannense, the best of the three inns. The host, Sr. Antonio Ferreira, who complicates the Boniface with the Figaro—the reception room was in fact a barber's shop—began by charging us heavily for pasture and maize. But we are now on the high road, where the leagues become better because shorter,† and the prices worse, because longer. We ended with a bill which would have done honour to the Hôtel des Ambassadeurs, St. Petersburg.

The establishment was the typical *estalagem* or country inn of the old Brazil. From the barber's room ran a long corridor to the back of the house, and it was so badly boarded that one risked falling through. The bed chambers, with walls bare of everything but dirt, showed plank couches, a chair, and sometimes a table. The passage leads to the dining-room, distinguished only by an *armoires*, whose glass front exposes spare china, cruets, condiments, a few bottles, and pots of provision. The normal "punch-bath" will not be ready for half an hour, the dinner for two hours: time is not worth a thought here, and regularity is next to impossible. The negroes and negresses prefer staring, whispering, and giggling, to work, however light: there is never less than one screaming child to make night horrid; and generally there are two fierce dogs that bark and bay responsively at the shadow of an opportunity. The feeding

* The married wear the flower on the right side of the head.

† Here the league may be assumed at

three geographical miles: as a rule, the further it is from the capital, the longer it waxes.

is that of the “venda;” there are “Irish potatoes,” the “famine root,” because we are in a city; and the lights are not lamps of Ricinus oil, but composition candles, for which we shall have to suffer in the purse.

And yet, to these three wretched inns there are nine churches!

CHAPTER XXXIII.

AT MARIANNA.

“La race Portugaise s'est emparée en Amerique de la contrée la plus admirable du monde, et que la Nature semble avoir pris plaisir à combler de tous ses bienfaits.”—*Castelnau (Expédition, iii. chap. 33).*

IN 1699, when João Lopes de Lima, a Paulista explorer, discovered gold in the “Rio Vermelho,” which we have just forded, the miners built the “Arraial do Carmo.” This became, in April 8, 1711, the “Villa de Albuquerque,” under the Governor of that name, and in the same year it was changed to “Leal Villa de N^a S^a do Carmo.” Public documents* granted precedence in all processions and public “Acts” to its Camara, as the senior Ædility in the Province. A royal letter from D. João V. (April 23, 1745) raised it to the rank of “Cidade Marianna,” or “Marianopolis,” so christened after the Austrian princess that sat upon the throne of Portugal. In 1750 the Quint alone exceeded 100 arrobas of gold per annum. This in 1799 fell to a little more than one-third.† But, as Dr. Couto remarks, the mitre then proved the best mine.

The finest view of the ecclesiastical city is from the southern rim of the basin, where the Church of São Pedro is being—or rather is not being—built. The plan shows some attempt at art, unlike the others which have grown out of being barns without acquiring the dignity of temples. It has two unequal bays, and attached to the southern, or greater, is a rectangular sanctuary. The clocherium, also composed of sandstone grit, resting upon solid foundations, awaits completion. The two bells are slung to the normal gallows outside, and there are graves which bother with their suggestive “Il faut mourir” those who are here for enjoyment. The façade bears the keys and episcopal hat and mitre.

* Dated July 17, 1723, and Feb. 21, 1729.

† More exactly 38 arrobas, 12 marcos, and 6 ounces.

The pilasters end barbarously in scrolls over the main entrance, and the side windows are not on the same plane. The body is partially covered with a zinc roof, which occasionally falls in, and the principal inhabitants are *taperas*—swifts or devilings.

Marianna lies below, couched on the pleasant western slopes, and extending to the sole of the valley, which is drained northwards by the serpentine Rio Vermelho. About the white mass of tenements lie diggings in red ground, and black Jácutinga heaps are the vestiges of its old youth. This basin, situated in a sub-range of the Serra do Itacolumi, which closes it on the south, is 2400 feet above sea-level. It suffers from the *neblina*, or morning fog, often deepening to a drizzle, but not so bad as that of Ouro Preto; and it is succeeded by sun which glows in the cloudless sky till evening. It is reported that during the rains its bleak cold causes severe catarrhs. This, however, must be taken *cum grano*, as the equatorial clove-tree flourishes in the open air. Eight fountains supply the city with water slightly ferruginous, and where there is scarcity it arises from extensive disforestation.

We were reminded that Marianna is a bishopric* by a prodigious tumult and clatter of Angelas bells and chimes, a tutti of the steeples, on Saturday evening. On the Sunday there was a "Missa de Madrugada," or dawn-mass for the tattered many who did not like to show their rags at a later hour; and shortly afterwards the Sisters of S. Vincent de Paul, a branch house of the Rue du Bac, set up the usual chaunt. At 8 A.M. there was mass, which began at 7:30 A.M., and thus the stranger was apt to miss it. At 9 A.M. there was high mass at the acting cathedral, and at 10 and 11 A.M. there was high mass in the other churches.

After breakfast we visited the city, which retains the character given to it by Gardner; it appears almost deserted. The pavement was really bad—good only for the chiropodist. There were a few neat two-storeyed houses, but the greater part was ground-floor, made of scantling and whitewashed adobes, with half-windows, and not a few rotulas or lattices. Some of the fountains were old and quaint, fronted by carved and painted dolphins that contrast curiously with the neat modern castings and statues of the "Atlantic Cities" in the Brazil.

* Sede do Bispado de Minas.

We called upon the Bishop Monsignor Antonio Ferreira Viçoso at the Palace, a large old bungalow, with hat and arms over the door. The venerable ecclesiastic, now aged eighty, was still in feature and pronunciation a Portuguese: his eye was bright and intelligent, and his face calm and intellectual; he was dressed in the pink-red robe, according to the order which prescribes black to the priest, scarlet (typical of shedding his own blood*) to the cardinal, and white to the Pope. He received us most kindly, endured the ring-kissing with much patience, and led the way to a library, mostly theological, and adorned with fancy medallions and portraits of classical philosophers. Mgr. Gaume would have joyed to behold the caricature of poor epicures who committed the one unpardonable sin of declaring that the gods do not trouble themselves with mortal matters, and, therefore, that it is vain to hire for them priestly servants.

The "Reverendissimo" is highly spoken of, and has done much for ecclesiastical education in this and other Provinces. He lectured on philosophy at Evora, and on theology, mathematics, and languages at Angra dos Reis—where he had been a parish priest—at Rio de Janeiro, and at the Caraça. He then became successively Principal at the Seminaries of Angra, the Caraça, and Campo Bello.† He was promoted in January 22, 1844, by Gregory XVI., and was consecrated in the following May by the Bishop of Rio, Chrysopolis, and Pará. He took possession, by proxy, on April 28, 1844, and made his public entrance in early June. He has anointed, in the Cathedral of Marianna, two of his Caráça pupils to the bishoprics of Pará and Ceará, and he has lately visited Diamantina to perform the same office for its diocesan. More than once he has employed six to seven months, even during rainy weather, in inspecting his see, preaching, confessing, and administering chrism. We may safely join in the general prayer, "Deos conserve seus dias!"

A short account of the Bishop's predecessors may not be uninteresting.‡ At the request of D. João V., Benedict XIV. dismembered the diocese of Marianna from that of Rio de Janeiro

* The Cardinalician purple has of late been solicited for the Archbishop of Bahia, the Primate of the Brazil. He will, if the honour be granted, be the first American that ever sat in the Holy College.

† A small place situated between Minas, S. Paulo and Goyaz.

‡ The Almanack for 1865 is answerable for any inaccuracies concerning the "Exms. Bispos de Marianna."

by the bull, “*Candor lucis æternæ*, Dec. 6, 1741.* The first diocesan was D. Frei Manoel da Cruz, D.C.L. of Coimbra, fourth bishop of Maranhã, and friend and coadjutor of the famous—or infamous—P^c Gabriel Malagreda, the “devil’s martyr”—“in Portug. pro fide occisus.” When nominated, Sept. 15, 1745, D. F. Manoel travelled to Minas overland, in those days a dangerous journey, and rains and sickness occupied him, some say eleven months, others fourteen months and a few days. He finished the Matriz, now the Cathedral; he founded the Seminary, and he laid the first stone of S. Francisco in 1762. Directed to oppose, with “prudence, paternal love, and charity,” the disorders of his herd, he was much complained of, but the King continued to repose in him the fullest confidence. He died Jan. 3, 1764, aged seventy-four, and he lies in the middle catacomb within the cathedral choir.

The second was D. Joaquim Borges de Figueirôa,” a secular priest, who became Archbishop of Bahia before he reached Marianna. He was followed by D. Frei Bartholomew Manoel Mendes dos Reis, formerly resident bishop of Macão; he also did not take personal possession, but he assisted in consecrating his successor. Then came three governors, one of whom, Ignacio Corrêa de Sá, the Doctoral Canon of the Cathedral, indited some singular threatening pastorals. “It is in your hands,” he declared, “to show that your sins are not the cause of my departure, by hearing the word of God. If ye do so, then if the Lord be not pleased that we depart * * * He will send another to serve him with zeal and charity.”

The fourth was D. Frei Domingos da Incarnação Pontével, a Friar-preacher, professor of philosophy and theology, and director of the Third Order of St. Dominic. He was confirmed by Pius VI., and he took charge Feb. 25, 1789. During his day happened the celebrated “*Inconfidencia*,” in which the noblest son of Marianna, Claudio Manuel da Costa, of Paulista family (born 1729, died 1789), sacrificed his life for his native land. His portrait in the Episcopal Palace, Marianna, bears this distich—

Quid præsul noster ? Nil est nisi pulvis in urnâ,
Cordibus est nostris vivis et ipse manes.

* Pizarro says 1746. He also remarks that the second and the third bishop enjoyed at Lisbon the emoluments of this diocese. This suggests the modern prac-

tice of certain colonial episcopi, who have escaped blame when they deserve more of it than the “buccaneer bishops” so severely “banged” of late years.

He was succeeded by D. Frei Cypriano de S. José, a friar minor (Franciscan), of Arrabida, and a literary man. During his rule the Royal family landed in the Brazil. This Bishop died at Marianna, August 14, 1817, and on April 9, 1820, D. Frei José da SS. Trindade, of the Reformed Minors of S. Francisco of Bahia, was consecrated. The independence of the country having been declared, he assisted in the coronation ceremonies of the first Emperor, who, with the Empress D. Amelia, subsequently became his guests. He died in his diocese, September 28, 1835, and he lies in the Cathedral, near the first bishop. The seventh, D. Carlos Pereira Freire de Moura, did not live to take possession. The eighth we have just met.

An ecclesiastic accompanied us from the Palace after the episcopal blessing had been given, to the adjoining Seminary, where we were duly introduced to the Principal, Rev. João Baptista Carnaglioto, of Turin. The staff consists of a Vice-Principal and seven professors, with as many priests. About forty of the 180 pupils are now resident. The long vacation begins in July, and ends with October 1. The course of preparatory studies lasts five years, after which those destined for the church are sent to the Caráça, and the others to the various academies of the Empire, where doctors—in law, mathematics, and medicine—are manufactured by the gross. When first founded, the Seminary was placed under the Jesuit, P^e José Nogueira. It was reorganised by the present Bishop, the rectors being now diocesans of Ceará and Diamantina; and for a few months the director of the collegiate part was D. Pascual Paccini, Professor of Natural History in the Museum of Palermo, sent on a scientific mission to the Brazil. Dr. José Marcellino Roche Cabral, ex-editor of the once famous “*Dispertador*”—the Awakener—and a well-known writer, who had exchanged political for private life, was also a vice-director. The Most Reverend then divided the pupils into a major and a minor class, and entrusted both to the Fathers of the Mission. Charitable persons have bequeathed negroes and estates to the house, and its finances are managed by administrators under the Superior.

We walked through the establishment, which was remarkable for cleanliness and order; even the kitchen was neat. *Au reste*, there were the usual long double rows of small black iron bedsteads and red blankets, the travelling boxes ranged along the

walls, the long tables down long refectories, and the long scriptoria, with endless desks, and the huge, antiquated maps which are seen in all such places. Upon the old doorway we were shown the date, MDCCLX.—1760 is a hoar antiquity in this the youngest of empires.

Lastly, we went to visit the Sisters of S. Vincent de Paul. In 1749, the good Bishop, who is Superior of the Order in the Brazil, collected alms, and established them in the city. They now number fifteen. The house receives from the Government six contos of reis per annum, and the law compels it to lodge, board, and instruct forty orphans, duly nominated by the authorities. The reverend mother, elderly and compact, active and bustling, received us cordially, and, with the rather startling words, "Allons premièrement visiter le maître de la maison," led us to the convent chapel. We then inspected their school of sixty-six boarders—girls of every age up to twenty, and even upwards. The pupils pay 180\$000 per annum, not including washing and small extras. No signs of luxury, and few of comfort, appeared; on the other hand, the arrangements were excellent, and nothing could be cleaner. Next we saw the second class, and the orphanry, numbering sixty-four. These in process of time will be married to suitable persons, who are expected to apply officially for wives. Lastly, passing through a good garden, we visited the hospital patients,* forty-two in number, including four men and six women—an unusual proportion—insane. They were employed in making flowers and pillow-lace, of course for sale; and all flocked up to kiss the Mother Superior's hand with great show of respect and affection. After buying a few mementoes, we went our ways.

Many Brazilians send their daughters to these places of instruction because they can get no better; but they do not like the old monastic system, roughly adapted to modern days. They fear to see their daughters buried alive "for the greater glory of God, and of the Ladies of the Holy Heart." They openly exclaim against the system of espionage practised in these places, and they have other objections which cannot with decency be specified. As a rule, even in Europe, and in England especially,

* The usual number in hospital is thirty to forty per annum. Many, however, enter when past hope. In 1865-6 the

infirmery received forty sick, of whom seventeen improved, thirteen died, and the rest were cured.

the teaching of religious houses is fifty years behind the world. After a course of six to eight years' study, the girl "comes out" in a peculiar state of ignorance, and supplied with certain remarkable superstitions and ascetic ideas,* such as dislike to society, aspirations to the life of a religious, which in a young country like the Brazil cannot be too strongly deprecated, and an *engagement* for penance and mortification which everywhere should be obsolete. Of this house it is said that an orphan girl, one of the pupils, when called upon to sign her name could not write. The assertion found its way into an official paper, and opened the eyes of the public. For my part, I believe the place of these excellent women to be in the hospital, or by the sick bedside, where their heroism and devotion deserve the highest respect. Instruction is not their *forte*, and yet they vehemently desire it, because thus they can best mould the minds of the rising generation.

* I could name a house of education, a "convent-school," not far from London, where in the nineteenth century children learn that on Christmas Eve all animals kneel down and pray; that thunder is the voice of the Deity—the merest fetishism; and that opiates must not be given to a dying person, whose "agony" is the last temptation to voluptuousness, or the final chance of penitence—three specimens out of three hundred! My experience is that

in matters of pure faith or belief—that is to say, taking statements on trust—all nations are as nearly equal as their development of imagination, of the marvellous, permits them to be. Amongst the most civilised peoples in Europe it is right easy to point out tenets which, submitted to the eye of reason, appear identical with those held by the savages of the Bonny River.

CHAPTER XXXIV.

TO PASSAGEM (THE PASSAGE OF MARIANNA) AND OURO PRETO.

Quand ploon per San Médar
Ploon quarante ghiours pus tard.—(*Old Proverb.*)

ST. MÉDARD had been rainy, and so was St. Swithin. One does not expect the weather-saints, be they SS. Bibbiana, Mamert, Pancrase, or Servais, to serve alike for both hemispheres. On the Saxon's fête we were visited by Mr. F. S. Symons, who, despite his domestic troubles, hospitably insisted upon our taking possession of his then empty house at Passagem. We left Marianna that same morning, ascended the hill on which St. Peter stands, and fell into the eastern slope upon a good road, lately repaired by the Provincial Government. The country has that monotonous beauty, primitive and savage, as Atala or Iracema, of which our eyes are now wearying. Our admiration of the inanimate is being fast exhausted; the wildly beautiful, the magnificence of virgin forest, the uniform grace of second growth, begins to pall upon us; we are tired of grand mountain, picturesque hill, and even of softly undulated prairie. The truth is, we want humanity; we want a little ugliness, to speak plain English, by way of relief. Anthropos and his works are to the land he holds, what life is to the body; without them Nature lies a corpse or in a swoon. It is not only the "inconstancy of man" that made Castelnau, in all this splendid scenery, look forward to the icy tempests of the Andes and to the shuddering caused by gulfs and arid deserts, and by precipices fit only for the condor. I cannot but hold that green is the most monotonous of colours, and that in a warm, damp climate its effect is a peculiar depression. In the desert of rock and clay there is a vitality and a vivacity of brain which we never experience in India or in Zanzibar.

Presently we passed a neat building, the Mine Hospital.

After a couple of short miles, we turned to the left and entered the grounds of the 'Casa Grande. This bungalow formerly belonged to a proprietor and shareholder in the Passagem diggings. From afar it looks well, but a nearer inspection shows that it is roughly put together. A fine head of water pours from the bluff in front, and beyond it is shown a gap, a kind of brèche de Roland, where, in 1699, the two Paulista exploring parties, headed by Manoel Garcia, who discovered gold in a branch of the Ribeirão do Campo, and João Lopez de Lima, the founder of Marianna, unexpectedly met.

We spent three days at the head-quarters of the "Anglo-Brazilian Gold Mining Company (Limited)." Mr. Symons rode over from the Morro de Santa Anna as often as possible, and we had every reason to be grateful for the proverbial hospitality of the Cornu-Briton. Our first visit was to the "D. Pedro Norte Del Rey," by the road now familiar to us, and up the Valley of the Córrego da Canella, towards which the Morro de Santa Anna and the Morro de Maquiné both slope. The former is no longer worked; the free gold in quartz and the auriferous pyrites did not pay. The ground, however, is a burrow of shafts and levels, rendering it dangerous to stray from the path. The face of the mountain is covered with a layer of "cánga" some four feet thick; but the containing rock of the quartz is iron mica slate. We therefore proceeded to the latter, where the launders were flowing and the wheels were creaking merrily in the forest that gloomed high above us. The Buraco de Maquiné is the centre of three well-known old diggings; to its west is the Buraco do Tambor; eastward, the Matador,* and on the west the Mato das Cobras. Around it is a mass of mines—Bawden's, Cornelius' (new ground), Benicio's, Honorio's, Branco's, and the Minas de Sociedade, a very old digging.

The Maquiné hollow, which lies in a spur of the main hill to the north of the Morro de Santa Anna, is drained by a stream which falls into the Córrego da Canella. The gully shows in the same range six distinct deposits of Jacutinga, iron, mica,

* The Matador property has been worked by the ancients; now it belongs to the Company, and in due time will receive attention. A cross-cut was driven into

the section called the Tambor; Jacutinga was found, but it proved to be unauriferous.

clay slate, decomposed quartz and gold; the lode runs east to west, the dip is to the east,* and the underlay is northerly. Between the beds are layers of *capa*, or hard iron slate, dipping 5° to 6° . Number four gully is the highest part where exploration had begun; number three, just below it, had been found "alive" with traces of gold, and number two (or the third from the top) varying in size from six inches to ten feet, is that which, after patient and persevering labour, has yielded such rich returns.

We rode up the hill accompanied by Mr. McRogers, the head mining captain, and saw the low ground to which the three deep adits will run. Mr. Thomas Treloar has taken due warning from his old place of employment, Gongo Soco. We were joined at the mouth of the mine by Mr. Hosken, another captain; it is here the rule that one man must not enter. *Jacutinga*† gold is free, and, unlike the pyritic, requires every precaution against exposure; in this matter it is as dangerous as the diamond, and, despite all carefulness, the negro will certainly find means of picking and stealing.

We entered No. 3 (from the top), or Hilcke's tram-level, the principal of the six which have been acquired by purchase or concession. The general direction was with the dip north 51° east, and four shoots or lines of gold have been found in it. The interior was literally walled with wood, cap pieces, and legs, with lathing of whole or split *candeia* trunks, and sometimes coarse planking to prevent the sides coming to. The sets of timbering were nowhere more than six feet apart. In the main levels, or arteries, first-class wood is used; ordinary timber suffices for the stopes, and when the lode has been taken out the walls are allowed to come together. Under guidance of the captain we visited the cross-cuts driven northerly to communicate with the lode, side passages, and minor levels, which should be level, but which are distinctly the reverse. When lode is encountered, these are extended in its course, and are used for tramming out broken ore. Several levels have been driven and abandoned, as the workings penetrated below them. The prin-

* The easterly dip of the line of gold averages from 20° to 26° . One of the lines has been worked on 150 fathoms from outcrop.

† The *Jacutinga* is soft, and consists mainly of micaceous iron, friable quartz, sand, and clay, in a containing rock of slaty iron ore.

cipal are at present "Hilcke's" and "Alice's," intersecting the lode, the former at 47, the latter at 128 fathoms. As a rule, the walking was easy and even pleasant; the mine was exceptionally dry, and no hanging wall took away from the sense of security. I noticed but a single blower—a crack in the side which emitted gas; we tried to ignite it, but could not, and in one place only the lights burned dim and blue. This speaks well for the ventilation of the drivings. "Rises," or communications from one level to another, are made for shooting down the ore broken in stope, and for convenience of breathing. Air shafts are especially necessary in Jacutinga, the worst of minerals for heat, which becomes intolerable. In some parts the impure damp has extinguished the lamps and driven away the miners; but this is rare.

After leaving the souterrain we saw some of the rich stuff washed by women, labelled, locked up in safes, and sent down to the lower stamps. Lately (1867) a nugget has been found containing 512 oitavas of pure gold, and measuring eighteen by eight inches. The common vein yields ten oitavas per ton, and about 1800 tons are worked per month. Rich ore gives 800 oitavas (eight pounds, four ounces, Troy) per ton; twelve boxes, or half a ton, have produced 1900 oitavas, and 700 pounds have given eleven Brazilian pounds weight of gold. This is magnificent. But lines of gold in the fickle Jacutinga, reach fissures, and frequently disappear. We carried off, by way of mementos, small but very beautiful specimens of nuggets—not to the detriment of the shareholders.

Remounting our mules, we passed a new building, the future "changing barracks," where garments which may contain gold will be deposited. After visiting the twelve head of upper stamps where the rough Jacutinga is crushed and straked, we descended to the lower stamp-house, where the rich ore is worked. When pulverised, it is placed in a tacho, or long copper vessel, and washed once more. Finally, it is taken up to the Casa Grande, and packed up for travel.

An extraordinary meeting of the proprietors of this Company, held July 23, 1862, sanctioned the purchase of the Morro de Santa Anna, and sent out Mr. Thomas Treloar. The latter was directed to place himself in communication with the agents, Messrs. Moore & Co., of Rio de Janeiro, and the works began

in 1863.* Santa Anna proved a failure, the quartz being poor and uncertain. The Superintendent had reported, "on the Maquiné side we have more territorial than mining extent," but the reverse was the case. An experienced miner had undertaken to raise from the despised hollow 2000 oitavas per day, and was offered a handsome sum in case of success, with the annexed condition, "no gold, no remuneration." There were many reports about the riches here buried. Tradition declares that a Portuguese took out large quantities and went home, intending to work the diggings on his return, which death prevented. It is said that the "old men" found near the foot of the wooded gap, sixty-four oitavas of gold after a burst of water, which drained off into the Córrego. Thus guided, and directed, moreover, by his long experience, Mr. Treloar panned up the stream and struck the lode. Maquiné was an afterthought; but the energy and perseverance which conquered it deserve every credit. It now employs 350 hands, white and black, and it is one of the only two successes which can be claimed by English mining in the Brazil.

According to Mr. Treloar's reports the Morro de Santa Anna was so valuable that in 1762 the Government honoured it with an especial law. By paying to the Treasury five per cent. of gold extracted, any subject of Portugal could open a cross-cut to the lode, and claim the surface ground for twenty-five palms, instead of receiving it by the "data," which was about ninety fathoms. Thus the mountain became the property of hundreds of people. Santa Anna became as populous as Marianna; extensive diggings were ignorantly driven; ventilation was neglected; hand labour in a pilão, or mortar, was the only treatment known. The yield fell off, and presently the major part became the property of a few, from whom the Company bought it. The Buraco de Maquiné also had a number of owners till it fell into the hands of a certain Padre Pires.

We also visited the Passagem mining property, which lies on the right of the high road to Ouro Preto. The site is a narrow river valley, surrounded by low rolling hills and tall heights; it is drained by the Marianna River, a mountain-torrent here,

* It began with 230 workmen, viz., profits of the Company amounted to 12 Europeans, 65 free Brazilians, 123 £51,944 (at the average exchange). negroes, and 30 negresses. In 1867 the

flowing north-east, under high precipitous banks. This auriferous rock formation has been worked for nearly a century. Caldeleugh described it in 1826. He found botryoidal manganese, with octahedral crystals of magnetic iron, in a ferromicaeous rock;* the metalliferous veins, which varied from six inches to three feet in thickness, were of schorly quartz, arseniate of cobalt, and pyrites, iron and arsenical, the latter called by the miner "lead." The lower strata were dark mica-slate, which higher up changes colour and blends with the simple quartz rock. Under Baron von Eschwege the Company had a capital of 20,000 crusados, and employed three overseers and thirty-eight negroes; of course it hardly paid its expenses. The rich stuff was carried in bowls to a mill of nine head of stamps, and the coarser powder was subsequently levigated between two horizontal iron plates worked by water—a more scientific process, by-the-bye, than the present. Passages 100 feet long had been chiselled and blasted into the mica-slate; the cog-pumps, however, could not unwater them. Capt. Penna, the then Superintendent, proposed to drain the mine by a deep adit, through which the stone could be hauled out; this was left for the present Company to accomplish. In 1840 Gardner tells us that the Arraial de Passagem had been built by gold washings which the people had abandoned for growing provisions to supply the capital. Since that time the property has belonged to a score of men. A company, whose brain was the Comendador Paula Santos, worked the "Fundão" ground, and sank, but to little purpose, the Vieira and the Rasgão adits.

The "Anglo-Brazilian Gold-Mining Company (Limited)" began in January, 1865, with a capital of £100,000, half paid up, and the shares are now at three-eighths premium, a favourable sign. I have seen the Third Report of March 31, 1866, and find it very satisfactory, promising a brilliant future. The works are only beginning; everything is on a small scale, and the speculation does not pay a dividend. But it is a "likely" affair, which may still do great things, and I have no hesitation in considering it even now a half success.

We put ourselves under the charge of Mr. Martin, head

* About Marianna the true Itacolomite often passes into mica schist, and the "phyllas satiné" contains garnet. There

is also a quantity of the curious flexible stone erroneously called Itacolomite.

mining captain, who first showed us the plan. There is a large extent of mineral ground. All the diggings are on the right bank of the streamlet, which rises eighteen feet during the rains. The southernmost is the Fundão, whose surface is a swamp which swells to a lakelet in the lowest part of the riverine valley; it was once reported to be the richest, and is approached by "Foster's Shaft." Follow the Mineralogico and the Paredão grounds, each containing its mine, and to the north-east, or down stream, no limit has been assigned to the lode. The main lode can be traced, and has been wrought for miles in length.

Habited in correct "underground" costume, and each with lantern and stick, we entered the main or "Dawson's Shaft," or rather inclined plane, leading to the Mina Grande, which has three others for the extraction of stone—"Haymen's," Hanson's, and Foster's. Northward are in succession the Mina do Buraco Seco, the Mina do Barril, with the Barril adit, and the Mina do Congo. A transverse section through the deep adit shows a surface of humus and Jacutinga based on clay and iron-stone. The lode underlies the reddish and ferruginous mica-slate; the footwall is talcose slate, sandstone, and "killas," of blue and ruddy rock, whose quartz, here soft, there hard,* is at times interjected between the lodes. The dip of the vein is south-east $17^{\circ} 30'$, and often shallower (15°), and the lodes run about north-east and south-west. The head-wall of the main lode (iron mica-slate) had been reached by old workings, some of which are still drowned out; a large accumulation of mud, crushed ground, and foreign matter, had to be cleared away. Thus the system of opening out the mines has been hitherto confined to sinking shafts on the footwall through the crushed workings of the former proprietors in order to encounter the lode. A large amount of the usual dead, unproductive matter has been got out. The lode and lodey stuff are said to be thirty-five feet thick,—namely, sixteen feet of main vein; a footwall of killas four feet "between the 'air and the 'oaf;" and lastly, fifteen feet of canôa, short or rich body. The "pay dirt" gives per ton three to four oitavas of 23-carat gold, worth £3 12s. per ounce.

We found the eighty-three fathoms of tunnel steep and dark, but

* Locally called Congelada, that is to say, quartz, felspar, and other hard rock.

dry and comfortable ; it was well timbered with beams and candeia trunks wherever the ceiling required propping. At length we reached a vaulted cavern, thirty-five fathoms of perpendicular depth. It was lit up with torches, and the miners—all slaves, directed by white overseers—streamed with perspiration, and merrily sang their wild song and chorus, keeping time with the strokes of hammer and drill. The heavy gloom, the fitful glare of the lights, the want of air, the peculiar sulphurous odour, and the savage chaunt, with the wall hanging like the stone of Sisyphus or the sword of Damocles, suggested a sort of material Swedenborgian hell, and accordingly the negret Chico faltered out when asked his opinion, “ Parece O inferno ! ”

We then went down to the “ deep adit,” fourteen feet below the canôa, or rich lode, and driven to the right bank of the rivulet. The stone is trammed to the mouth, and hauled out ; thence an inclined plane of wood, which runs up the nearly perpendicular ascent, and a whim conveys it to the stamp-houses. The matrix is evidently auriferous arsenical pyrites, much resembling that of Morro Velho ; gold is rarely seen in the quartz, and sometimes “ black Cáco ” is found. The good picked stone is in the proportion of sixty per cent. Nineteen Europeans, including the Superintendent,* compose the white force ; the others may be 380—400, men and women. The recruiting for the Paraguayan war, so near the capital, has greatly interfered with the supply of timber as well as hands. About fifty men work underground at once ; each has a task of four palms or six palms, with extra pay for overtime, and the bore raises half a ton per diem, or a daily total of sixty to seventy tons. The stone raised varies from 1600 to 1800 tons per day, and the produce is from 3000 tons upwards.

When we were to grass we touched our pipes and examined the upper works. There were two hauling whims with mule-races, serving the four inclined planes which ran from the bottom of the mine to the spalling floors. There were forty-two head of stamps, of which thirty are new ; they are divided into upper and lower, and the stuff is carried to them in platters on women’s heads ; after the third crushing the slime is allowed to run off. The arrastres and amalgamation have not yet been introduced. The

* Mr. Furst, an officer in the employment of the Company, had lately died of typhus ; the body became, it was said, “ yellow as a guinea.”

stamped sand, when fine enough, is washed in the batêa, and the gold is stored in locked-up troughs. The coarser stuff, before being replaced in the upper stamps, is levigated on sloping slabs in the "wash-house."

Very comfortable and pleasant was that Casa Grande, with its piano and plenty of books, not to speak of Bass and sherry. We had taken leave, and the mules stood saddled at the door, when Mr. Symons made up and asked me to read the burial service over his mother-in-law. At 3 P.M. we collected near the little ruined chapel that overlooks the narrow Valley of the Rio Vermelho. After not hearing for many years the "order" of the Church of England, I was struck by the coldness and deadness of the rite, the absence of consolation to the living, and the want of comfort to the dead, if "spiritists" speak the truth. And what is there appropriate in the "Lesson taken out of the fifteenth chapter of the former Epistle of St. Paul to the Corinthians," with its argumentative tone and its unintelligible allusion to being "baptized for the dead?"* How far better is the short "office" used in the older western section of Christianity. The Cornishmen seemed resolved to add a little life to the ceremony. When the reading was concluded they sang in a nasal tone a lengthy hymn, which gave them, I presume, some spiritual refreshment.

It was late in the afternoon when we set out for Ouro Preto, distant a short league. The whole length is more or less inhabited. So we read in 1801 that it was populous with little settlements and miners' huts built on heights near water. The line was then a fine calçada with an avenue of trees, which were, however, beginning to fail. Now it has changed for the worse; it runs upon a kind of ledge. To the right is a confusion of red clay hills, covered with scrubby vegetation; on the left, deep and invisible in its rocky bed, flows the Rio Vermelho or Marianna

* Paul, 1 Corinthians, xv. 29. Amongst the Marcionites (A.D. 150), who were partly Manicheans, the rite was literally performed. When a man died, one of the sect sat in his coffin, and was asked by another whether he were willing to be baptised, and, consenting, he was baptised. The Cataphrygians, who followed the wild Montanus (A.D. 170) also baptised their dead; and vainly the orthodox contended that the act was foolish and useless, since if it were valid a person might be baptised for a Jew or a Greek, and effect his con-

version without the will of the recipient. Of modern days the practice has undergone revival. See the "Book of Doctrines and Covenants (of the Church of Jesus Christ of Latter-Day Saints; selected from the Revelations of God. By Joseph Smith, President)" under the heads "Baptism for the Dead, acceptable only in the Temple;" "Baptism for the Dead, the Nature of." I have also alluded to the rite in the "City of the Saints," chap. ix. p. 471.

River. The line is a gentle and regular ascent of red sand and black earth, now muddy, then dusty. Scales of ferro-micaceous slate glitter like powdered silver, and here they say occur scatters of pale blue cyanite. The general direction is west, with a little southing.*

We found Passagem, where several of the English miners lodge, a little village with a certain air of neatness. A compatriot, who from a labouring man had become a capitalist, here has a large house. We had lived within a stone's throw of him during three days. When we met, he invited us to become his guests, but he had not energy enough to call. In three weeks, perhaps, he might have succeeded. It is said that the first words learned by the stranger in the Brazil are, "paciencia," "espere um pouco," and "amanhã"—Patience, wait a wee, to-morrow. I may add that some foreigners learn the lesson better than their teachers. Men who live too long in the Tropics often fall into a nervous, solitary habit of life; in fact, the difficulty is not to do it. Sr. Domingo Martens, of Whydah, left valuable silver plate lying for years on the beach, because he would not or could not order a guard of his army of slaves to bring up the boxes. I know a traveller who spent three years in Inner Africa, always wishing and intending to leave it, but lacking energy to give the word. My excellent friend, Lieut.-Col. Hamerton, of Zanzibar, resolved every night to pack up next morning, till, not being able to make such exertion, he died.

About half-way we sighted a tall white fane, the Igreja do Alto da Cruz, which in the gloaming looked like a Frankenstein, frightful and gigantic, flat on its back, with its two legs *en l'air*. Another mile showed on the right the Chafariz de Agua Ferrea, whose old front and long inscription testified to the virtues of its chalybeate. Near the entrance the road had been cut out of the solid rock; on the right, or northern side, was a quarry of white freestone large enough to supply the Province, and tunnelled with long-abandoned gold works, now used by the poor as pig-styes; to the left a parapet defended wayfarers from falling into the great dark gully which, running west to east, drains the two parallel lines, the southern Serra de Itacolumi and its opposite neighbour, the

* Burmeister's map makes Marianna due east of Ouro Preto, which it is not. In the last edition of Mr. A. Keith John-

ston (Stanford, Charing Cross) Marianna is placed south-south-east of Ouro Preto, which is worse.

Serra de Ouro Preto. Both had been bored and excavated, riddled and honey-combed for veins and nests of auriferous quartz.

The situation of Ouro Preto, whose "ill-omened and ill-applied name" is pathetically noticed by Mr. Walsh, struck me at once as unlike any capital that I had yet seen.* We are accustomed to find race symbols and national character thoroughly developed in the political and administrative centre called a metropolis, and here we shall see that the old Villa Rica is not the less suggestive than Washington of the magnificent distances. It is nothing but a great village, a kind of "Aldcota," a single street built after the fashion of Minas along the highway, and near the water required for gold washing. Thus it resembles a provincial town, and there are many in Minas which equal it in population and exceed it in importance. Hence, also, life in these country settlements is a something

* * * Duller than the fat weel
That rots itself in ease on Lethe wharf.

The want of level ground causes the white houses that cluster on the rocks, whose salient angles face the torrent, to creep up and down the minor ridges which run perpendicularly from the main range, and to stand on steps cut out of the hill-sides. Here they lie scattered over the heights, there they disappear in the shades below us. The prospect wants all the grace and grandeur of a city. Yet it is singular, it is full of "surprises," and it is, to a certain extent, romantic and picturesque, thoroughly Mineiro.

We and our "following" found shelter at the house of the Commendador Paula Santos, Hospitaller or Receiver-general of the English at Ouro Preto, as was José Peixoto de Souza in the last generation. He was then at Rio de Janeiro, but his brother, Dr. José Marçal dos Santos, did the honours of the Golden City.

* Provincial capitals in the Brazil average 20,000 souls; some of them, Aracajú and Macció for instance, much less; others, as Pernambuco and Bahia, much more.

CHAPTER XXXV.

VILLA RICA, NOW OURO PRETO (WEST END).

Difficiles terra, collesque maligni.—Georgics.

THE following topographical description of the city was published in the “*Annaes de Medicina*” of 1848, by one of the illustrious “sons” of Ouro Preto, Dr. Eugenio Celso Nogueira. It is only fair to let him describe his home:—

“The capital of Minas is situated on the Serra de Ouro Preto, S. lat. $24^{\circ} 24' 6''$, and W. long. (from the Sugarloaf of Rio de Janeiro) $0^{\circ} 16' 51''$. Four hills, offsets from the same chain, form the base, and the irregularity of the site makes an exact description of the city a difficult task. Of the hills, some advance, others retire, leaving between them deep gorges. Those which are too steep for building purposes are covered with a poor vegetation, and are irregular with orifices due to time or to man’s toil. The houses are built in unequal groups, rarely occupying the same plane; hence the irregularity, which extends even to the street levels. Mostly they have an upper story, except in the suburbs, where the ground floor is the rule. In the city almost all can boast of glass windows and ceilings of bamboo-mat; in the outskirts they are low and mean, some wanting even floors.”

“Of the four hills, the most important is that of the Praça, raised 1620 toises* above sea level; the Bairro of Ouro Preto, the lowest, numbers 1579, and the summit of Itacolumi 1960 toises. The city enjoys few clear and serene days; throughout the year, especially during the rains, the sky is covered, and the

* The toise, I presume, is six French feet = 76.755 inches, or 6.3946 feet English. Thus 1620 toises would be = 10,362 feet. The Almanack gives 5245 (Lisbon) palms = 3758 feet. Caldclough places the square (bar. 26.393, and therm. $69^{\circ} 30'$) 3969 feet above sea level. Gerber makes the

Palace Court 1145 metres = 3747 feet. My instruments (No. 1 and best, B.P. 206° , Temp. 65° , and No. 2, not so good, B.P. $206^{\circ} 30'$, Temp. 62°) range between 3180 and 3373 feet; of these two I should prefer the latter, and give in round numbers the height of Ouro Preto 3400 feet.

clouds seem to have made their home upon the mountain tops."

This was written in 1843; since that time the climate has, they say, improved. But the altitude, the accidents of ground, and the peculiar position, make it subject to extremes of diurnal variation and to great uncertainty. Now it has the sun of Italy, then the fogs of England. The climate is distinctly sub-tropical, and northern races must be acclimatised before they can thrive in it. Yet it is cold; the equatorial fruits are poor; the pine-apple hardly ripens, whilst apples and quinces flourish. The temperature is hottest at 2 P.M., and coldest after midnight; the mean variations are from 58° to 84° F. in the shade; the latter is rare, but the extremes would, I believe, tell a different tale. Evaporation is excessive, the result of feeble atmospheric pressure,* whilst the neighbourhood of the mountains exposes it to strong aerial currents from the Atlantic; hence it is one of the dampest places in the Highlands of the Brazil. It is difficult to prevent broad-cloth from being mildewed except in air-tight cases. As regards the healthiness of the climate opinions greatly differ. Of two Brazilian friends long resident here, one spoke highly in its favour, declaring that it had no endemic complaint: the other affirmed it to be dangerous, especially at the changes of season in April and November, and at all times fecund in goitres and consumption.

The plan attached to M. Gerber's book will, despite its defects,† enable us to find our way about the city, beginning at our temporary home.

The Commendador's house is buried amongst the hills at the lowest level of the one long street, and in a good central position. To the east is the well-built and parapetted stone bridge, the "Ponte dos Contos," crossing the Córrego of the same name. The rivulet winds from north to south till it joins the main drain, which we hear running below us as if over a dam. The Córrego bed is at this dry season a garden with tufty plots of strawberries and a noble Jaboticabeira myrtle, under which the "ranæ

* Dr. Franklin da Silva Massena, the engineer who studied engineering at Rome, calculates the atmospheric pressure on the human body to be 3·76 arrobas (12,032 lbs.) less than upon the seaboard of the Brazil. The annual mean temperature of Ouro

Preto is generally laid down at 19°·9 (Cent.).

† The *Planta Topographica do Ouro Preto* is on too small a scale; the streets are not named, nor are the hill-lines properly laid down.

palustres" make night vocal. The tenement is neat, with moulded windows and corniced roof, and the balcony is adorned with busts and a noble vine.

Our first walk will be up the Rua de São José, the thoroughfare leading with many a loop and bay, to the west and north-west. The place is classical. Close to our quarters is the small three-windowed house where lodged the unfortunate Alferes of Cavalry,* Joaquim José da Silva Xavier, nick-named (por alcunha) "Tiradentes," or "Draw-teeth." This is not, as I supposed, an equivalent to our "Bell-the-Cat." The patriot was literally an arracheur de dents and a maker of artificial teeth. Several of his relatives are still at Alagôa Dourada, and they preserve his étui, the coarsest possible contrivance. He performed extraction "with subtle lightness," and he taught himself to make artificial teeth. The sight carries us back to the days of a popular movement, of which this great and heroic Province may reasonably be proud, as it led directly to the Independence of the Brazil.

The democratic nature of the outbreak, which the Government called the Conjuração (Conspiracy of Minas), or Levante de Minas (Rising of Minas), and which is now known popularly as the Inconfidência or Treason,† was evident, and as "sacred" as that of our Great Rebellion. The conspirators, when apprehended, made, it is true, protestations of loyalty, but their designs spoke for themselves. They resolved to proclaim their independence and liberty, and they proposed to abolish the highly obnoxious "Fifths" (Quintos), and other royal extortions; to cancel all Crown debts, to throw open the forbidden Diamantine lands, and to found a university at Villa Rica and a capital at Saõ João d'El-Rei. They had devised a flag and arms, a triangle supposed to represent the Holy Trinity, whose mystery was the chief devotion of Tiradentes; the motto was to be "Libertas quæ sera tamen,"‡ and the symbol, an Indian breaking his fetters.

* Born 1757. Official documents call him ex-Ensign of the paid cavalry troops of the Minas Captaincy. The vulgar suppose that he was "Ensign," or Lieutenant of Artillery. He was captured on May 10, 1789, and placed by orders of the Viceroy in the Ilha das Cobras.

† An opprobrious term, adopted as a boast. St. Hil. (I. i. 202) calls it la prétendue conspiration, and declares "on ne découvreit aucune preuve." His account of the movement is poorer than Southey's.

‡ Not a genius, as is popularly said. "Genio" and "Indio" in M.S. would be easily confused. The Virgilian motto has fared very badly. Southey gives it "Libertas *pue* sera tamen"—Senhor Norbete "Libertas quæ *sero* tamen." Sr. A. D. de Pascual (p. 60) writes "Libertas quæ sera *tandem*." The latter published in 1868 (Rio de Janeiro, Typ. do Imperial Instituto Artístico), a brochure entitled "Um Epysoodio da Historia Patria. As Quattro derradaciras Noites dos Inconfidentes

Evidently the intention of the "Inconfidants" in their "embryonal attempt" was to establish a republic in Minas and the adjoining captaincies. This was in 1788, half a generation after the Boston Port Bill, the Starvation Plan, and the Tea-chests led to the King's war, and brewed a storm which upset and shattered the old colonial system of the world. The great Cromwell had taught the Anglo-Americans, and these in their turn, aided by the Encyclopedists and the "philosophers," had inoculated France with the sublimest ideas of liberty and independence. Hence the spirit of emancipation passed like an electric flash to the Brazil, where the "analogy of situation" was at once recognised. The Empire, I may here say, founded herself, and did not owe her existence, as the superficial remark is, to Napoleon the First. At that time the Governor and Captain-General of Minas Geraes was the Viscount of Barbacena,* and it must be owned that though he was an avaricious, corrupt, and unprincipled man, his vigour and address contrasted favourably with the feeble obstinacy and the failures of Burgoyne and Cornwallis. The circular touching the revenue which he addressed to the several *Cámaras* quite settled the grievance upon which the conspirators prepared to work. But his superior, the Viceroy of the "State of the Brazil," who succeeded at Rio de Janeiro D. Luiz de Vasconcellos e Souza, was the "stupid and taciturn" D. José de Castro, Count of Resende, the "pest of Portuguese nobility."

The Cabeças or leaders of the patriotic rebellion were thirty-two; such at least is the number sent for trial to Rio de Janeiro. There were not less than 1000 suspected, the flower of the land, clergy (of whom five were found guilty) as well as laity, all friends

de Minas Geraes (1792). The four last nights began with Tuesday, April 17, 1792. The author professes to quote from the MS. of a Franciscan Padre of the Santo Antonio Convent, who was sent with ten others on the night of the 18th and those following to console the eleven condemned to death. The Jesuits had introduced the custom of sending a minister of religion to be present whenever a capital sentence was read out, and on their expulsion the office passed to the Franciscans. Sr. Pascual informs the public by an *Advertencia* that he had purposed originally to write a drama; he has certainly in writing history preserved the dramatic form.

* D. Luiz Antonio de Mendonça Furtado. The name is thus given in MSS.; books usually prefer Furtado de Mendonça. The people believed that he had been sent out to recover arrears of the gold quint, amounting to 22,400 lbs. of gold. In July 11, 1788, he succeeded Luiz da Cunha de Menezes. The latter, who is satirised in the *Cartas Chilenas*, had some inkling of the republican tendencies then rife in Minas Geraes; but having many friends there, he contented himself, when returning to Portugal, with reporting the affair in a general way; hence dragoons and other troops were sent out to the disaffected colony.

if not relations.* We may imagine the horror-stricken state of the people when the movement failed. The notables were the proto-martyr "Tira-dentes," the arm of the conspiracy; Claudio Manoel da Costa, the brain; the poet, Thomaz Antonio Gonzaga, of whom more presently; and the seven condemned to death. These were, 1. Francisco de Paula Freire de Andrade, of the Bobadella family, Lieutenant-Colonel of the Cavalry Corps (Cavallaria Viva) of Ouro Preto, a man of high position and most interesting character. 2. His brother-in-law, José Alves Maciel, freemason, and first confidant of Tira-dentes, and who had travelled in the United States and in Europe; † his confessor describes him as a St. Paul persuading the others, and a St. Augustine directing to God his true confessions. 3. Ignacio José de Alvarenga Peixoto, ex-Ouvidor of Sabará and Colonel of the First Auxiliary Corps of the Campanha do Rio Verde. 4. The venerable Domingos de Abrêu Vieira, ‡ Lieutenant-Colonel of the Auxiliaries of Minas Novas, who had seen his seventieth year. 5 and 6. José de Resende Costa, father and son. 7. Dr. Claudio Manoel da Costa, Crown Procurator and Commentator upon Adam Smith, Commissioner of Customs, and Father of Political Economy. 8. Lieutenant-Colonel (Auxiliary Cavalry) Francisco Antonio de Oliveira Lopes. 9. Luis Vás de Toledo (Piza). 10. Domingos Vidal de Barbosa, doctor or surgeon. 11. Salvador Carvalho Grugel do Amaral; and lastly (12), Tira-dentes. They

* The Almanack (1865, p. 51) gives twenty-four as the number of the Inconfidentes; of these twenty-one were found guilty. M. Ribeyrolles has published the trial in Portuguese and French. Dr. Mello Moraes (Brasil Historico, Rio de Janeiro, Dec. 18, 1864, and succeeding papers) has printed the whole Processo do Tiradentes. The original documents were, it is said, kept for many years sewn up in a leather bag amongst the archives of the Secretary of State for Home Affairs. But I believe this to be a mistake; the Visconde de Barbacena carried off to Europe all the documents which compromised him; many remained even in the Secretariat of Ouro Preto, and not a few have been published.

† There is, I am told, a despatch amongst those written from Paris by Thomas Jefferson to Washington, reporting that he had met at Passy two envoys from the Brazilian colony; of these, it is said, José Alves Maciel was one. According to General J. I. De Abreu e Lima (Compendio da

Historia do Brasil, chap. 5, § 6) Maciel was probably the person mentioned by Jefferson when writing from Marseille on May 4, 1787, to "John Jay;" an extract of it is given in the Revista Trimensal do Instituto Historico (vol. iii. p. 209). Varnhagen (ii. 270) mentions the fact of Jefferson meeting at Nismes an ardent young Brazilian, José Joaquim da Maia, whose father was a mason at Rio de Janeiro. J. A. Maciel escaped better than his friends, because he was the son of a Capitão Mor, and was on good terms with the Captain-General.

‡ I am happy here to be able to record an instance of negro affection and gratitude. A slave, of name unknown, belonging to this officer, induced the authorities, by force of petitioning, to grant him permission of accompanying his master to jail and to exile in Africa. Sr. Pascual calls him a "black diamond" and a "faithful, noble, and saintly slave."

met, says their process, at Villa Rica, in the houses of Francisco de Paula and of Dr. Claudio, and the sentence orders the place of their "infamous conventicles" to be razed and salted.* They had, it appears, determined to open the proceedings with the watchword, "Hoje e o dia do baptizado;" others say "Tal dia hé o baptizado" (To-day is the day of the baptizcd), (scil. republic). Lieutenant-Colonel Andrade was to keep order with his troops, Alvarenga, Oliveira, and Toledo, with their slaves and partizans, were to excite the neighbouring towns; whilst Tira-dentes was to sally forth with vivas for liberty, and to hasten for the Governor's head to his country house near Cachoeira, where that dignitary amused himself with farming.† Finally, Portugal was to be officially informed that Minas Geraes had become an independent republic.

According to Southey, who, not having heard the other part, writes with an evident bias towards Portugal, the conspirators "acted like madmen." Some of them seem to have done their work in a half-hearted fashion, others to have been far too open and confident, a few thought that saying was as good as doing, and many looked upon the attempt as "hypothetic," not holding the people ripe for liberty. It was, in fact, a "rude tyrocinio;" on the other hand "it was a great enterprise, and everything must have a beginning." The poet Gonzaga‡ spoke of Tira-dentes as a poor devil, fit to become Jove or Neptune as to be the chief of such a rebellion. One man upon his trial called it a comedy; the Franciscan chronicler more aptly designated it a tragedy. Revenge and treachery were rife as in the ranks of Fenianism. The arch-delator was Colonel (of Auxiliaries) Joaquim Silverio dos Reis Lairia Genses, one of the conspirators who reported the plot verbally§ to the Governor. He owed 20,000

* The "razing" was not done, as it was found more profitable to appropriate the confiscated property. One door and the little room occupied by Tira-dentes, were pulled down and have since been destroyed.

† The conspirators declared that they intended to arrest and deport, not to murder him. This seems probable; but with such a *tête-montée* as Tira-dentes, it is hard to avoid excess or to foresee what may happen. In such circumstances men mostly act upon the instinct that the only way to get rid of an enemy is to take his life. The Visconde de Barbacena was so unpopular that

when he visited Ouro Preto he was obliged to take peculiar precautions. A room in the present palace was divided by him into eighteen different compartments, and no one knew where he sat or slept.

‡ Lyras, ii. 38, 7—9. It is generally believed, however, that Gonzaga applied the words "pobre, sem respeito e louco" only to save his friend. The confessor of Santo Antonio describes him as "enthusiastic as a Quaker, and adventurous as a Quixote."

§ Authorities are not agreed whether it was done verbally or in writing.

cruzados to the Treasury, and he hoped by his treachery to obtain a remission of his debt. The documents signed for transmission to the Viceroy bear the names of the Mestre de Campo Ignacio Corrêa Pamplona and Lieutenant-Colonel Basilio de Britto Malheiro. This wretch demanded as the price of blood a pension and decorations. He was praised in the process as a loyal and Catholic vassal, and was left to starve at Pará, where he was driven by public indignation.

The accused were arrested on May 23, 1790, confined separately, and sent in a body to Rio de Janeiro. There they remained imprisoned, curious to relate, in the very same building where some years afterwards some of them took their seats as members of the National Assembly. Their confinement lasted till sentence was pronounced on April 18, 1792. Dr. Claudio Manoel da Costa, the "Amigo Glaucestre" of Gonzaga, was taxed by the Governor with treason, when he replied, alluding to the absorption of Portugal by Spain, "Traitor was your grandfather, who sold his country!" He was removed from the prison to a vaulted closet under the main staircase of the "Casa dos Contos." The permanent guard was changed, and he was murdered by the soldiers.* A report was spread that he hanged himself to a cupboard, after having opened a vein with the buckles of his breeches in order to write with his blood a distich on the wall, for he too was a poet.† The tale that his corpse was exposed on a taller gallows than usual in the Campo de São Domingos is fictitious; it was at once buried in unconsecrated ground, the Garden of the Quartel da Guarnição. But the vicar Vidal of the Menezes family, whose sister was grandmother to the present Senator Teixeira de Souza, of Ouro Preto, disbelieving the report of suicide, exhumed the body, and with the aid of two slaves, Agostinho and another, consigned it to the third catacomb in the High Chapel of the Matriz of Ouro Preto.‡

* Tia Monica, a *sage femme*, happened to be passing professionally by the house just after the murder, and saw two of the soldiers dragging out the body of D. Claudio, a large-framed man, who was easily recognised. The Bobadella family tried in vain to save him.

† He was devotedly attached to Anacreon and Malherbe (et Rose elle a vecu, etc.) Among the confiscated articles belonging to Gonzaga were copies of these authors, bearing the name of Claudio Manuel. His poetry

is well characterised in the Plutarco Brasileiro, i. 225—252. The Holy Office disliked the tone of his prose writings, and allowed few of them to be printed. The distich that showed the ruling passion strong in death never came to light.

‡ A soldier happened to die at the time, and according to some authorities the poet was interred in consecrated ground under the supposition that he was the defunct "praça."

Eleven of the conspirators, Gonzaga included, received sentence of death. Seven of the ringleaders were condemned to be hanged at the Campo da Lampadosa, to be decapitated and quartered, with exposure of heads; their goods were confiscated, and, after the barbarous fashion of the time, their sons and grandsons were declared infamous. Four others, Salvador Corneiro do Amaral Gurgel, José de Resende Costa,* father and son, and Dr. Domingos Vidal de Barbosa, were sentenced to hanging on a gallows taller than usual, like their friends, to beheading without exposure, but with loss of goods and attaind of issue. The decree was read to them on the night of April 19, 1792. Five were exiled for life to the Presidios or garrisons of Angola, and mulcted of half their property, with threats of death in case of their return. The rest were temporarily banished, and two false accusers were flogged. None could complain of their fate. They knew the law; most of them were officials under government; they had staked their all upon the throw, and they had lost the game.

But it is said that the legal proofs were vile, and consequently that the sentence was iniquitous. In those days the Viceroy was omnipotent, and the judges also, terrified by the example of France, carried on the proceedings with Draconic severity. Curious to observe, the Jeffries of the trial was the Desembargador Antonio Diniz da Cruz e Sylva, a poet still popular, whose Pindaric odes and heroico-comic piece, "O Hyssope," have become classical.† But the Queen, D. Maria I., the first crowned head fated to visit the New World, was merciful: she commuted to perpetual banishment all the capital sentences of the Philippine Ordinances, except that of Tira-dentes; and thus of eleven heads only one fell. Usually it is supposed that he was a mere tool of deeper men, punished in terrorem. The tradition runs otherwise. He was the very type of Mineiro blood, of sympathetic presence, and sanguine-bilious temperament. He had studied in the military schools of France,‡ and had there matured the project of a Pan-America by adding Minas to the list of Republics headed by

* Proprietor of the Sitio da Varginha, where one of the martyr's arms was put up, a property now belonging to the Dutra family. His descendants in Africa claimed, on the ground of illegal sentence, its restitution, but did not succeed.

† Ferdinand Denis, ch. xxvi. The Hyssope has been compared with the Lutrin,

and the poet has been called the Pindar of Portugal. His assessors on this occasion were Antonio Gomes Ribeiro, the prosecutor, and the chancellor, Sebastião Xavier de Vasconcellos.

‡ The tradition is at fault; he never left the Brazil.

the United States. He died only forty-five years of age, energetic, and very "phrenetic." During the first year after his return home he had ridden five times, not on foot, as the tale is, in the interest of his darling project from Ouro Preto to Rio de Janeiro. At this place he was arrested. Upon his trial, although he left a wife and a little daughter, he had denied nothing; he accused no man; and finally he died, as political martyrs mostly do, like a hero.

The spot chosen for the execution of the Tooth-drawer, whom I can hardly call unfortunate, was then a wild space on the west of Rio de Janeiro, the Campo dos Ciganos, a place where gipsies and newly-imported negroes (*negros novos*) were buried. Six corps of infantry and two "companies" of cavalry, besides auxiliaries, a large armed force for a city of 50,000 souls, surrounded the scaffold, which stood exactly on the spot where the funeral coaches are now kept for hire. Crowds of people covered the plain, and massed themselves upon the skirts of the Santo Antonio hill. The son of the Count de Rezende (D. Luiz de Castro Benedicto), mounted on a horse shod with silver, commanded the troops. Whilst a *Te Deum* for the benefit of Her Majesty was chaunted at the Carmo, and loyal speeches were being made, the Brotherhood of the Santa Casa da Misericórdia, as was then the custom, collected alms to be spent on masses for the repose of the victim's soul. The sum amounted to a "dobra," Sr. Pascual says five *dobras*, each 12\$400 *reis fortes*, equal now to 100\$000, showing the sympathies of the crowd. The heroic dentist, calm and grave, was led in the tunic of the condemned from the prison (now the Chamber of Deputies) by the Rua da Cadêa, the present Rua da Assembléa, and the Rua do Piolho, accompanied by two priests, and guarded by 100 bayonets.* He continued his adoration of the Trinity and the Incarnation till he reached the scaffold. There he presented his gold watch to the executioner. His last words, after repeating with his director the Athanasian Creed, were, "Cumprí a minha palavra, morro para a LIBERDADE" (I have kept my word—I die for liberty). The glorious confession was drowned by a ruffle of drums and clang of trumpets. At 11 A.M. he was hanged by the neck till dead, decapitated and quartered by a negro hangman and valets. His head and limbs were salted.

* According to Sr. Pascual, the Juiz de Fóra rode before him.

The former, of which poets have since sung as the "Cabeça do Martyr," was sent in a cask, and much decomposed, with an escort of dragoons to Ouro Preto, and placed upon a tall post (poste alto) which then stood at the north-eastern corner of the Rua Direita, fronting the main square. The windows were decked, and all the citizens were compelled to attend and shout "vivas" for the Queen. It is related that his brother, a priest,* shrank from the spectacle, and was compelled by force to stand and look and hurrah with the rest. His arms were sent to Parahyba and Barbacena, his legs were nailed to wooden posts (postes altos) on the Minas road, in the Sitio of the Varginha and the Freguezia de Cebollas,† "where the criminal had sowed the seed of revolution, and had committed his abominable practices." As he was a lodger, the value of the house was granted, but not paid, to its proprietor; it was ordered to be razed and thrown into the river, and the site to be ploughed and planted with salt, "that never again on that spot there might be building;" but interest preserved it. A Padrão,‡ or Stone Column of Infamy, was set up, and this remained till 1821, when the citizens, excited by the new Constitution, assembled and abated the nuisance by pulling it down. In future days there will be a Mausoleum on this spot. At present Brazilians think little of these national glories; even the hill of Ypiranga has no monument to mark it amongst hills.

Thus tragically and with blood ended the "comedy," in the same year that witnessed the decapitation of the Bourbon "son of St. Louis;" and hardly had a single generation passed away when the Tree of Liberty and Independence, watered by the blood of the Republican Tira-dentes, shot up and overshadowed the land. Twenty-nine years after the savage scene above described the wild plain of the execution became the Rocio now known as the Praça da Constituição, and in sight of the spot where the gibbet was planted rises the statue of the first Constitutional Emperor of the Brazil, the Man of Ypiranga.

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* Tira-dentes had two brothers who were priests.

† This place is on the road from Minas to Parahyba do Sul. It now belongs to the Deputy Sr. Martinho de Campos.

‡ The word is a corruption of Pedrão, a large stone. In the heroic days of Portuguese discovery these columns were planted by the adventurers, who thus took possession of the soil for the Crown, and Camoës tells

us that Da Gama's armada was supplied with them.

According to Sr. Pascual, who is, I believe, in error, the head was placed in an iron cage (gaiola de ferro), and mounted upon a Padrão. He also relates that the brother of Tira-dentes, at 2 A.M., May 20, 1792, placed within the cage a stone with the symbolical inscription, "30." "Emvunah."

The Rua de S. José, beyond the widening where the proto-martyr lived, has a good modern macadam; it contrasts with the rest of the city, where the cruel pebbles are like our cobble stones—one seems to be “walking upon eye-balls.” This main artery of the Western Quarter, the Bairro de Ouro Preto, shows the usual style of house, shop and store. The walls rise as if made of cards, straight from the ground, and in some of them a lower coloured band two or three feet deep resembles an external wainscot. Upon the roofs one line of tiles is placed convex, overlapping its concave neighbour, and the edges are closed with mortar;* joists from the wall support a horizontal planking upon which rest the eaves extended to defend the foundation; the underpart is finished with boarding and whitewashed, and if the house is of a Janota or dandy, the under edges of the tiles are painted vermilion. There are no tubes of derivation, and spouts large as an average hose pleasantly play upon your hat or your umbrella. Street literature hardly exists, signboards are rare and quaint, and the shops still preserve the homely little glass cases hung up to the jambs by day and taken down at night. The stores being ground-floor, tailors, shoe-makers, and artisans work at the doorway, or at the door-like windows which reach the ground, and employ half their time in chatting with the passing friend. English shops are common, and there is, as usual in these depôt towns, a small retail trade in everything that the mule trooper or the backwoodsman requires. I saw little of the decay which Mr. Walsh describes in 1829, and which made travellers declare that Villa Rica had become Villa Pobre. After the right-angled parallelograms, so offensive to the warped eye of the European traveller,† which characterise the new settlements of the Brazil, Ouro Preto has as much misshapen curvature and narrowness as can be desired. There will be every picturesque difficulty for water drainage and gas—somewhat a heavy price to pay for crookedness.

* A Chinese style. So the Kiaus of Borneo (“Life in the Forests of the Far East,” by Spenser St. John. London, Smith and Elder. 1862. Vol. I. p. 263) split their bamboos in two, arrange the canes side by side with their concavities upward to catch the rain; then a row is placed convex to cover the edges of the others and prevent the water dripping

through. It is an excellent hint to travellers where bamboos abound.

† I confess to admiring above all things a perfectly straight street, with a vertical swelling or depression, especially when there is a sag that allows the eye to fall upon it. Nor can it be presumed that a man is born with a taste for crooked streets and unparallellogramic squares.

Amongst the foreigners here established, we found an Englishman, Mr. Saul Spiers and his family. He dealt in jewellery and such matters generally, and here we saw specimens of the Minas topaz, of which the older authors, beginning with John Mawe, have left such careful descriptions. Here were three common varieties of this stone so rich in flaws, the wine-coloured, the brilliant straw-yellow, and the almost white; under the influence of "Fashion," and of extensive falsification, they soon became a drug in the markets of Europe, and are now no longer dug or indeed used except by watch makers. A few skins of ounces and wolves were procurable, but in the cities they are rare and very expensive. We also met Mr. David Morritzsohn, a German, once a shareholder in the land that now contains the Morro Velho Mine; he is now a delegate of the French Consulate at Rio de Janeiro. Further on is the best hotel, the Quatro Nacoës, kept by a Frenchman.

From the main street a long leg to the left or south leads to the hole in which is built N^a S^a do Pilar de Ouro Preto, the Matriz of this Quarter. The material of the old and primitive missionary pile is whitewashed stone and mud, with pilasters of grey-yellow sandstone and capitals painted chocolate. The main entrance fronting westward is somewhat bowed to the front,* and adorned with two columns of the Minas-Ionic, banded in the centre and resting upon an architectural nothing. Glass appears only in the façade, a calico-strip defends the rose-light, and the bell-towers are half-finished. The only praiseworthy parts are the old doors of solid wood, and these want washing and painting.

My wife, who entered the Matriz, describes it as being egg-shaped; round the upper part is a gallery opening into the body by four arches on each side, and one for the choir over the door. The ceiling of antique wood-work is carved and gilt, painted and frescoed; a curious box suggesting Punch and Judy, and hung near the choir between Heaven and Earth, contains the organ. There are two handsome pulpits, and four silver lamps dangle before the six side altars; the latter are of ancient taste, carved into angels and other grotesque figures.† A coat of arms well cut

* Here called "forma oitavada."

† On the right are,—

No. 1. N^{as} S^{as} dos Passos and das Dorcs;
São João Baptista and S^{ta} Rita.

No. 2. S^{ta} Anna and Virgin; São José
com Menino Deus and São
Joaquim.

No. 3. A large Crucifix; São Miguel;
São Francisco de Paula, and
Santa Boaventura—Saint Good
Luck, for whose mystery I have
a respect verging upon adora-
tion.

On the left are,—

in stone is placed near the ceiling over the Sanctuary rails. The Sanctuary, a mass of carved and gilt wood, has four tribunes; amongst its frescoes is a Last Supper on the ceiling, and tapers burn in large silver candlesticks in presence of the B^d Sacrament. The High Altar has a throne for the Santissima, surmounted on ordinary occasions by a statue of the Patroness, N^a S^a do Pilar, over whose head a crown is held by two angels; she is adequately supported by S. Pedro and S. Francisco de Borgia.

South of the Matriz, lined with tottering steep-roofed houses, is the Campo do Manéjo or parade ground, a kind of Praia or river-beach at the junction of the Córrego de Ouro Preto into the Funil stream from the south-west, and the latter has the honour of being named as the source of the great Rio Doce. The two form the Ribeirão do Carmo, Rio Vermelho or Marianna River. It rushes down a crack, a deep dark passage evidently draining an old lake or pond, which now appears to be a mere widening in the sandy bed. This place was once enormously rich; early in the present century, 12,000 slaves worked there, and the diggings supported the population of 30,000 souls. Even in Gardner's time, the half-naked "faiscador" could make a shilling a day by panning the sand and gravel, after removing the larger stones; now he may "dive" for ever like a duck, but he will find nothing.*

Beyond the Manéjo, a turn to the north leads to the N^a S^a do Rosario de Ouro Preto; † like the other churches, it is built upon a platform that levels the sloping ground. The body is divided into a pair of bays, the portico with stout piers is defended by a wooden railing painted red, and the space in front shows a fountain and a stone cross. Further to the east, a hill-top is

No. 1. N^a S^a da Conceição; the Guardian Angel (Anjo de Guarda), with S^a Isabel and the Menino Deus, all together; and São Sebastião.

No. 2. N^a S^a da Terra; S^a Ursula, Queen of the glorious Eleven Thousand; São Francisco de Assis, and São Domingos.

No. 3. Santo Antonio and Menino Deus; São Vicente de Ferreira, and São Gonçalo.

* Faisca de Ouro, primarily meaning a spark, is applied to a flattened particle or spangle of gold; it is opposed to Pisca de Ouro, a grain of gold smaller than the

canjica, which again is less than the pepito, or nugget. The washer is called faiscador, and as his work is mostly under water he is said to mergulhar, or dive.

† In the other quarter there is another N^a S^a do Rosario, called do Alto. It was once very rich in plate, which has now disappeared. The tale is that the negro gold-diggers, who mostly affect this invocation, were allowed by their masters at the annual October fête of their patroness to load their wool with precious dust, and to wash it off in the holy-water stoup. When 12,000 to 14,000 men thus did, the "Golden Fleece" must have been no myth.

crowned with the Church of S. José; it has a single central tower, a clock stationary at 4:37, a heap of sand at the entrance, and one old man at work. Thence a long and steep paved ramp leads to the S. Francisco de Paula, upon which a man and a boy—they suggested Trafalgar Square—were putting a fresh front. There is no general panorama of Ouro Preto buried between its great parallel ranges, we must view it little by little, and here is a fine prospect of the Western Quarter limited by the two-towered chapel, Sr. Bom Jesus de Matosinhos, in the place called “As Cabeças.”

Now going further north we cross a small stream by the “Pontilhão do Xaviers,” a single arch; there is a good quarry of “freestone” up the ravine. Eastward lies a yellow ochre building, the barracks (Quartel) of the Police, once 600 strong, now volunteering in Paraguay. Their place is being taken by a new levy, which as yet numbers only 220. They are known by blue coats and red edgings (*vivos*), which for the National Guard are white, or fancy colour. Ouro Preto, being a capital, has its little troop of galley-slaves, who are seen in the streets working at the pavement under a master-mason. They do not beg like the Tuscan *galeotto*, but each man requires a guard, and beyond smoking and lounging, they do very little throughout the Brazil. This penalty, re-invented in the days of Charles VII., and made fashionable by Louis le Grand, wants extensive modification.

To complete the circle round the Bairro de Ouro Preto, we leave on the right a small single-towered temple, N^a S^a das Mercês (de Ouro Preto), whose façade bears a gilt figure and the inscription, “Ego Mater Pulchræ Dilectionis.” To the south lies the cemetery of the brotherhood, abundant in weeds. The other tertiary orders of the capital are S. Francisco de Assis; S. Francisco de Paula, and N^a S^a do Carmo. We are now behind the Palace in the upper town, and we descend to the lower by a long stone ramp running to the west. The only remarkable building here is the “Quartel da Guarnição fixa,” a misnomer, as that garrison has gone to the war; the exterior is painted yellow, and inside is a hollow square, worse than the Scutari hospital in its worst days.

Physically Ouro Preto is unworthy of the vast Province which it commands; even in S. Paulo it would be only a second-rate town. The straggling and overgrown mining village numbers

6000 to 10,000 souls,* in 1500 houses. During its palmy days, between 1723 to 1753, the census gave 2400 tenements, and 30,000 inhabitants, of whom two-thirds were slaves; in 1800 it had already fallen to 19,000 to 20,000. In 1865 the whites were six to one black, now they are seven to one, and everything shows that the climate is not suited for the African.

Amongst its many disadvantages we may observe that carriages cannot be used, and that even riding is not safe in the city; there is no ground for extension, the streets are too narrow for rails, and the country is unfit for the iron horse. Hence we have the sights and sounds of a capital, the fair sex dressed in French toilettes,—

“Gents corps, jolis, parés très richement.”

Officers and men in uniform, civil and military, orderlies riding about, bells, guard-mounting, bugle sounds, and music ecclesiastic and military, whilst perhaps listening to the band stands some old negress habited in male cloak, with rusty chimney pot hat proudly perched upon a dingy kerchief. Literature can hardly be said to flourish when the Ouro-Pretanos cannot keep up a single bookseller's shop.† The late Abbé and energetic President, Councillor Joaquim Saldanha Marinho, has reformed the educational establishments and created five “Externatos.” We have visited one at São João d'El Rei; the others are at Ouro Preto, Companhia, Sabará, and Minas Novas. This has been an incalculable benefit. The illumination is poor, worse even than that of São Paulo; each lamp should be equal to six not to three stearine candles, and many of the posts are lying on the ground. The lands around it are unproductive, the gold-veined mountains cannot be worked except by companies, and the city is not wealthy. In Ouro Preto I did not see a single gold coin, and but for its minor industries it would resemble our miserable English colony on the Gold Coast. The city lives by the sweat of other brows, by its profession as a capital, and by

* I should prefer the number 8000. At the same time there is a considerable floating population, and on special occasions it may reach 10,000.

† In 1840 the Provincial Assembly established a preparatory college, with chairs for Latin, French, English, Philosophy,

Mathematics, and Pharmacy. The Botanical Gardens, which, under the General Government, once spread 20,000 lbs. of tea about the country, have been let for 200\$000 per annum to a private proprietor. The people are fond of music, but that is everywhere the case in the Brazil.

the money which the Government expends upon its employés, making the Province complain of "Empregocracia." Being on the thoroughfare between the Imperial metropolis and the Diamantine District, it has a certain amount of small commerce, but this again is not likely to last. The sooner another site for a capital is found the better, but it is not easy, I have already said, to point out a central locality suitable for the purpose.

CHAPTER XXXVI.

OURO PRETO CONTINUED (EAST END).

Tu formosa Marilia, ja fizeste
Com teus olhos ditosas as campinas
Do turvo ribeirão em que nasceste.—(*Gonzaga, Lyra* xxix.)

ON the other and far side of the bridge, where the city looks like a bit of old Abbeville, is the House of Millions* (*Casa dos Contos*), now the Thesouro, or the (Imperial) Treasury by excellence. It was built, as was the Commendador's house, by one João Rodriguez de Macedo, a very rich and important citizen, who kept open doors and lived in splendour. Like many others, he ruined himself by taking the contract of the "Disimos" or Tithes, which were confirmed by Pontifical Brief to the King of Portugal as Grand Master of the Order of Christ; and his debts threw his property into the tender hands of Government. He died almost mad and in penury. It is a fine large substantial pile, with bindings of grey stone, heavy balconies, and a Mirador or belvedere on the top. Below on the right is the *Colectoria*, where the provincial export dues are collected; on the left is the Branch Establishment of the Bank of Brazil,† whose President is Dr. Marçal, and behind it is the Post Office. *En passant* we were shown the place of Dr. Claudio Manoel's death. In the upper story is the General or Imperial Treasury, with all its complicated staff, inspector, chiefs of sections, writers first, second, and third, supernumerary writers (*praticantes*) and others; half a dozen to do the work of one—"loafing about" not included.

Thence we ascend the *Rua dos Contos*, a long straight ramp which sets out to the south-east, passing on the left a fountain,

* A name given by the people in the days when gold was lodged there.

† "Caixa Filial do Banco do Brazil." The capital was from the beginning and still is 100:000\$000 (say £10,000), in

notes of the Banco do Brazil. I would as willingly give other details; unhappily the Treasurer promised punctually to supply them to me, and as punctually neglected to do so.

one of the thirteen or fourteen in the city. It is curiously inscribed :—

Is quæ potatum cole gens pleno ore Senatu
Securi ut sitis a am (sic) facit ille sitis.

The water is better than the Latinity. On the right is a gay-looking building, the Mesa das Rendas, lately made a Provincial Treasury, showing a wilderness of clerks who, pen behind ears like the Secretary bird, work hard at the statistics of street communication.

The Rua Direita or High Street, which turns sharp east, is very steep and slippery, with narrow trottoirs. At the top is the Praça,* the square, there being no other. It is a long parallelogram sloping to the centre, which shows a monument to the Martyrs of Independence, lately built by subscription. It somewhat unpleasantly resembles the pillory of ancient days,† and we could not judge of base or capital, because both were en papillotes. It wants a figure of Liberty, Poetry or the Indian, "Brazil," or some other pretty heathen, for although a pillar supporting a statue is bad enough, a column that supports nothing is worse.‡ On the north is the Presidential Palace,§ finished by the Brigadier of Artillery, José Fernandes Pinto Alpoim, mentioned in the "Uruguay;" the scientific artillerist was also architect of the Viceregal, now the Imperial Palace at Rio de Janeiro. This Government House formerly accommodated the Gold Intendency in the lower part; the front looks like a "chateau-fort," a dwarf curtain connects two trifling bastions of the Vauban age, and its popguns used to overawe the exceedingly tumultuous town. The normal long stone ramp leads up to the entrance, which bears the Imperial arms and a gigantic "auri-verd banner." Here we called at the reception house between 11 A.M. and 1 P.M., upon the senior Vice-President and acting President, Dr. Elias Pinto Carvalho, a "liberal Historico," corresponding with our old Whig, born at Cruvello, and formerly Juge de Droit at Sabará. We were received in a fine large sála, with the inevitable sofa and double perpendicular

* Or Praça Publica. There are five Largos, or "Places," in the English, not the French, sense—mere widenings in the streets. Of the latter thirty-five are counted.

† The tradition is that the head of the heroic dentist was here placed—an error.

‡ Dr. Muzzio informs me that the Indian breaking his chains, who was to appear upon the flag, will take station here.

§ Palácio do Governo.

line of chairs ; there was little to remark but the inordinate size of the "huge half-bushel-measure spittoons." His Excellency promised to forward my journey, and really took the trouble to write a long list of introductory letters, a kindness which I hardly expected, and for which I beg to express my sincere gratitude. At the Palace I also met the Secretary to Government, Dr. H. C. Muzzio, whose name has appeared in these pages. He is deeply read in poetry, and especially in the history of the "Inconfidencia;" to him my readers owe the first detailed and correct account of this great historical episode which has ever appeared in England.

We then visited the "Paço de Assembléa Legislativa Provincial" on the north-east of the square. The hall was large and in good repair, with seats for the President and the two Secretaries, facing as usual the semi-circle of deputies' desks ; the public accommodation was very limited, an advisable precaution where discussion is apt to be exciting. South of the "Paço" is a plain house, the Câmara Municipal. The southern side of the square is occupied by a fine solid old building, the prison ;* the Mineiros declare de Ouro Preto a Cadêa e agua—the best things at Ouro Preto are the water and the jail—they boast of it as the finest in the Empire ; perhaps it was, but now it cannot compare with the newly established Houses of Correction. On the ground is a fountain with a long inscription, and a double flight of stairs runs up to the guarded entrance, flanked by barred windows. The first and second stories have Ionic pillars, with huge and ponderous volutes, and around the top is a massive stone balustrade, with a statue of Justice and other virtues at each corner ; nor has the lightning rod been neglected. The prisoners are 454 men and 12 women, a notable difference. We visited in the upper story, the infirmary and the rooms for recruits disposed to desert ; the drainage has lately been improved, but there was still something to do in the way of cleanliness. The inmates showed more industry than usual, and the head keeper, Sr. Joaquim Pinto Rosa, wisely makes all his jail-birds learn some handicraft. He ascended with us the winding staircase of the tall central clock-tower, and from the leads we enjoyed a curious prospect.

The shape of the Golden City, or rather of what part we see,

* The old Bastille was in the middle of the square ; no vestiges of it now remain.

is that of a huge serpent, whose biggest girth is about the Praça, which also represents the Court or West-end. The extremities stretch two good miles, with raised convolutions, as snakes have in old books. The site is the lower slope of the Serra de São Sebastião, drained by the Funil in its break: this subrange is part of the "Ouro Preto" line, extending two leagues from east to west.* The "streeting" of both upper and lower town is very tangled, and the old thoroughfares, mere "wynds" and "chares," show how valuable once was building ground. Some fifteen churches,† mostly rise on detached and conspicuous points, and thus gain an appearance of elderly consequentialness. The houses hanging about the picturesque ravine, as near to the old mine-lake as possible, have necessarily one side taller than the other. Polychrome has the best effect: there are all varieties of colours, even the Imperial—gold and green—whilst one tenement is faced with imitation brickwork, white, red, and yellow.

All the view is hilly and "goldy," turned up and rummaged by the miner. Immediately south the Morro do Cruzeiro bears its cross, and here lies the highway to Rio de Janeiro. The gem of the prospect lies a few steps to the south, where we see upon the horizon, rising above its mountain wall, Itacolumi, the "Stone and Pappoose."‡ A tall black monolith projects its regular form against the sky, bending at an angle of 45°. By its side is a comparatively diminutive block, which the red men, picturesque in illiterate language, compared with a child standing near its mother. Perhaps the name alludes to some forgotten metamorphosis of Indian fable, and, perhaps again, this is the idea of some Mineiro poet who had not forgotten his bird. The slopes culminating in this apex are here bald, there grass-clad; tall Araucarias tell the severity of the cold, and if a cloud exist in the sky it is sure to find out "Itacolumi."

Deep in the hollow at the mountain foot, and backed by shady trees, is an uninteresting building, long, low, tiled and white-

* The substance is micaceous quartzose slate, resting on micaceous slate, with clay shale at intervals. Some travellers mention a base of gneiss, but I did not see this.

† There is at present an excessive economy of priests at Ouro Preto, only one-third being allowed to each church. About 1866 Padre França, the Chaplain of the Police, who also attended the prison,

was suppressed. They declare that his salary of 1:400\$000 per annum was earned by celebrating one mass per fortnight. Caldeleugh mentions twelve churches.

‡ The name reminds us of the "Cow and Calf" at Ben Rhydding, which has no right to the "Ben." But how homely is the English compared with the Indian simile.

washed — very like a comfortable farm-house. Here lived and died “Marília,” whose profane name was D. Maria Joaquina Dorothea de Seixas Brandão, the local Hero, Beatrice, Laura, or Natereia, and who narrowly escaped being the Heloise of Minas.* She was niece of Lieutenant-Colonel João Carlos Xavier da Silva Ferrão, an aide-de-camp (adjudante d’ordens) to the Governor. Books tell us that she was a “descendant from one of the principal families in the land,” † but this is denied by some at Ouro Preto. Born in 1765, at sweet fifteen she was promised by her uncle, a staunch Royalist, to the poet Gonzaga, then aged forty-four, and there is a legend that her beauty hastened the tragical denouement of the “Inconfidencia.” A certain Colonel Montenegro, ‡ when “jawáb’d,” as the Anglo Indian says, taunted her with preferring to a “gentleman of fortune and position,” a poor “man who wrote books.” She, girl-like, lost her temper, and retorted that she preferred brains to money and Montenegro. The latter denounced by letter the conspiracy to the Viscount of Barbacena, who turned pale, placed the paper upon the table, and left the room. His cousin, Fr. Lourenço, the hermit of the Caráça, happened to be present; the missive was blown to the floor, and the friar, picking it up, saw all at a glance. He retired, sent for his friends in haste, told them the treachery, and advised them to fly. They, however, hurried on the movement, and rushing armed into the streets, attempted to raise the cry of Liberty. The Governor, who being intimate with many of the accused, had, according to his party, determined to retire from his post, was thus compelled to take action.§ This tale is not told in any of the voluminous writings

* The first two parts of Gonzaga’s Pastorals (Amores and Saudades) are entitled “Dirceu de Marília,” *i.e.*, to Dirceu from Marília, and are thus “attributed” to the lady. They are, however, the answers to, and echoes of, the second three parts, “Marília de Dirceu,” *i.e.*, to Marília from Dirceu, and it is generally believed that they are the work of the editor, an unworthy mystification. D. Maria probably never wrote a line of verse, or perhaps prose, in her life. “Marília” is evidently Amaryllis, and thus that well-known Brazilian Latinist, Dr. Antonio de Castro Lopes, translates by

Rusticus haud, Amaryllis, ego, nec sole,
 geluque
 Torridus, alterius qui servem armenta,
 bubulcus :

the first couplet of Lyra,—

Eu, Marília, não sou algum vaqueiro,
 Que viva de guardar alheio gado.

† The same is asserted by the Visconde de Barbacena, May 23, 1789. Moreover, the arms of the family are well known.

‡ The reader will bear in mind that all this is merely local tradition. I record it on account of its wide diffusion in popular belief.

§ This certainly does not appear in the Secret Correspondence of the Viscount of Barbacena with the Viceroy D. Luiz de Vasconcellos and with the Court of Lisbon. The Franciscan chronicler before alluded to, curiously defends Barbacena by declaring that “he never was guilty of extortion, and he governed Minas as Caligula ruled Rome.”

upon the "Inconfidencia," but I heard it everywhere in Minas, even upon the banks of the São Francisco River.

Haplessly for the romance, Heloïse was notably unfaithful to Abelard, as Abelard was faithless to Heloise.* The lovers whom "death could not part," and whose written protestations of constancy are legion, separated after the discovery of the rebellion: this is easily explained: amongst the Inconfidentes there had been some little talk of removing the stern aide-de-camp's head. They were, however, allowed to meet and bid farewell for ever—the scene is said to have been painful. And both did worse things. A certain Dr. Queiroga, Ouvidor of Ouro Preto, had the honour of supplanting, but not with a legal tender, the poet Gonzaga. By him D. Maria Dirêu, as she was called, had three children: Dr. (M.D.) Anacleto Teixeira de Queiroga; D. Maria Joaquina and D. Dorothea, all blue-eyed and light-haired. At Ouro Preto she is now best known perhaps as the Mãe do Doutor Queiroga. In later years she lived retired, never left the house except for the church, and died (1853), aged eighty. Since that event the family has quitted Ouro Preto, and none could say where it had gone. She never would pronounce her lover's name, especially shunning the subject with strangers. On her death-bed she said to her confessor, "He (elle) was taken from me when I was seventeen." Those who knew her well described her as short of stature, and retaining in age finely formed features, and "a bocca risonha e breve"—the short smiling mouth—they agreed that her eyes were blue, and that her hair, which was white, had been meio-louro, blonde or light chestnut. Her lover, curious to say in four places, makes her locks the "hue of jetty night," and in four others, "crisp threads of gold," and the author of the favourite edition of the *Lyras* defends him as only friends can defend.†

* That is begging her right to the name of Heloise. The young and lamented author, A. P. Lopes de Mendonça (*Memorias de Litteratura Contemporanea*, p. 375), is unjustly severe upon the hapless Marilia, not because she was unfaithful, but because she lived to the age of eighty-four (eighty). "This man, this poet, this tender soul, this passionate heart, this austere republican,"(?) this illustrious victim, this martyr to love and native land, lived through fifteen years of exile in Mozambique, far from her, far from the bride to whom he had devoted all

the sighs of his lyre, all the tears, all the torments of his misfortunes, whilst she continued to live careless and indifferent. She never thought of going to console him, of going to live with him, of going to die with him! O women! O women!" Moreover, he suspects that she used cold-cream.

† Marilia de Dirêu, *Lyras* de Thomaz Antonio Gonzaga, precedidos de uma noticia bibliographica, e do Juizo Critico dos Auctores Estrangeiros e Nacionaes, e das *Lyras* escriptas em resposta as suas, e accompan-

From the Praça we descended the Rua do Ouvidor to the south-east, and at a corner where four streets meet, fronting the Rua dos Paulistas, we remarked that the historic house of Claudio Manuel still wants the commemorative tablet. Perhaps the Ouro Pretanos think with the Greek that *Ἀνδρῶν ἐπιφανῶν πᾶσα γῆ τάφος*. Well does it deserve to bear a quotation from Plutarch, "Vitâ dignissimus est, quique morte suâ patriæ salutem querit. It is a small five-windowed corner building, yellow, with green balconies. At the entrance is a dwarf hall; upstairs is a little square room with whitewashed walls, the studio of Vasconcellos,* and a second apartment, very similar, built round with old-fashioned brick seats, opens upon a roofed terrace or broad verandah. Here the Inconfidentes met to discuss their poetry, their projects, and their political aspirations; and from it there is an uninterrupted view to the home of D. Maria in the hollow.

The house began its life of fame by its connection with the "Revolution of the Three Poets," as the movement is still called by the people. They are Gonzaga, Claudio Manuel, and Colonel Ignacio José de Alvarenga Peixoto,† a man of the noblest character, a philosopher and a poet of "intemperate imagination," but perhaps the least high-seated in the Portuguese Parnassus of

hadas de Documentos Historicos. Por J. Norberto de Souza Silva. Two vols., 8vo. Garnier, Paris, e Rio de Janeiro, 1862. It is severely criticised by the scrupulous and painstaking Dr. Mello Moraes (Chorographia do Brazil, tom. iv. p. 612, of 1862), who charges the editor with the additions before alluded to, and many Musgravean corrections and conjectural emendations.

As regards the important question of the colour of Marilia's hair, Sr. Norberto remarks, certainly not in favour of his poet, that "louro" (blonde) rhymes well with "ouro" and "thesouro," quoting the Spanish sarcasm,—

Fuerza del consonante, á lo que obligas
Que haces, que sean blancas las hormigas.

Anglicè.

Fault of the rhyme's compelling might,
That turns the ant from black to white.

The original MS. was not (as is generally said) burned by D. Maria; a copy in MS. was given by her family to Dr. José Vieira Couto de Magalhaes, actual President of Mato Grosso.

* Mr. Walsh, ii. 214.

† The pastoral Alcêu of Claudio Manuel, who called him cousin (primo). Born at

Rio de Janeiro in 1748, he studied at Coimbra, and served the Crown as a magistrate at Cintra. Thence he returned home in 1776, and became Ouvidor in the Comarca of the Rio das Mortes. He preferred, however, retiring into the country and writing verses, which were highly esteemed by the amiable and liberal Viceroy, the Marquess de Lavradio. With a wife and four young children, he honourably sacrificed domestic happiness at the call of his country and his friends. On April 18, 1792, he was sentenced to death, which on May 2 was commuted to transportation for life, with confiscation of goods and attain of issue to the second generation. He arrived at Ambáca, in Angola, a broken-hearted, white-haired man, white-haired when aged only forty-four, and there he died early in 1793. An ode inscribed to D. Maria I., another to Pombal, and a third in honour of his Alma Mater Coimbra, are admired as musical, facile in rhyme, and abounding in tranquil beauty. They will long be quoted in Cours de Littérature and Chrestomathics; the Parnasso Brasileiro (vol. i. 322—339) has given copious extracts from his other compositions.

the present day. There were two others more or less concerned in the affair, namely, Manuel Ignacio de Silva Alvarenga,* and Dr. Domingos Vidal de Barbosa, who was banished for life to West Africa, and who died there also in 1793. This celebrated quintette may be called the heads of the Minas school.

In this house Gonzaga, the central figure of the poetic group, used to pass his time embroidering wedding-garments for D. Maria and himself.† Lately some of his letters have been found, ordering silk thread from various merchants. He was born at Oporto in August, 1744, and was there baptised on September 2. The Brazil claims him, as his father was a Brazilian official, and he himself calls the colony his home.

Por deixar os patrios Lares
Não me pesa o sentimento.‡

And he mentions his youth having been spent at S. Salvador da Bahia,

Pintam que os mares sulco da Bahia
Onde passei a flor da Minha idade,§

He studied law at Coimbra, he took magisterial office at Beja and other places in Portugal, and finally he became Ouvidor of Villa Rica—in those days a more important person than the President in these. His approaching marriage delayed him for two or three years, and he lingered even after he had been appointed Desembargador, or one of the Judges of the Supreme Court at Bahia, a delay which told strongly against him. The general belief is that the home government, whose consent to the union was then necessary, hesitated to give leave, because it did not wish the poet's influence to be settled in Minas. A legend still told within these walls, and I believe it is true, makes a muffled figure on the night of May 17, 1789, warn him of the approaching storm. He paid no regard to it: on the 22nd he dined at home in the Rua de Ouvidor || with his friends, and on the next day all were under arrest.

* He has been noticed in Chapter ii.

† Aqui um lenço
Eu te bordava.

“For thee a kerchief I did embroider.” Part I., “Amores,” Lyra 10. The words allude to the poet's occupation, but the author-editor places them in the mouth of Marilia.

‡ Vol. ii. Part 3, Lyra 3,—

“To leave my own paternal Lares,
Little of regret I feel.”

§ Vol. ii. Part 2, Lyra 7,—

“They (dreams) paint me ploughing through
Bahian seas,—
Bahia, where my youth tide's flow'ret
bloomed.”

|| On the left-hand side going down. It was the old residence of the Ouvidores, or Chief Justices, and is now a police office.

Gonzaga * was sent with the other accused to Rio de Janeiro. His friends were placed in the prison where the Chamber of Deputies now stands: he was confined in a dungeon (masmorra) in the Ilha das Cobras, and afterwards in the houses of the Third Order of Francisco da Penitencia. During his 1095 days of solitude he relieved his mind by scrawling upon his dungeon walls with desperate charcoal, candle or torch soot, and an orange-stick. He was subject to four several examinations,† and he complained bitterly of the virulent hatred of a private enemy, Basilio de Brito—now an unknown name—who had sworn to “follow him to the gates of death.” The evidence against him was very conflicting, and almost wholly presumptive: at times hopes were held out to him, and he thought that his marriage might take place. He was reported to have undertaken a code of laws for the new Republic; on the other hand he was affirmed to have quarrelled with Tira-dentes, and the conspirators seem to have looked upon him as an outsider. His sentence, finally issued on April 18, 1792, dwells upon the fact that he was a “man of lights and talents,” and he was evidently lost by his high reputation. For daring to be an eminent and intellectual mind he was banished for life to the Pedras de Angoche (Encogé), in West Africa: after the execution of Tira-dentes, the penalty was commuted to ten years’ transportation to the deadly climate of Mozambique, with pain of capital punishment in case of return. The voice of the people, whose instincts are so true in these matters, has done him justice, and the favourite name of the movement is now the “Inconfidencia do Gonzaga.”

On May 23, 1792, the third anniversary of his confinement, the unhappy poet left for ever, in the ship *N^a S^a da Conceição Princesa de Portugal*, the shores of his loved Brazil. At the pestiferous Mozambique his life was miserable, he tried vainly to practise law, and he lost the gift of poetry.‡ He forgot “*Marilia bella*,” or perhaps on the principle “*Saudades de mulher só mulher mata*,” six months after landing he married a rich mulatto girl who had nursed him through his fevers. “*D. Juliana de Souza Mascarenhas*” was aged nineteen, and signed her contract with a +, and she was addicted to beating her

* Spix and Martius have erroneously made him Ouvidor of “*S. João del Rey*.”

† These Interrogatorios were dated Nov. 17, 1789; Feb. 3, 1790, and Aug. 1 and 4,

1791.

‡ Whatever he wrote there was stamped with nostalgia, and shared the decay of his intelligence.

husband. He became almost insane, and died in 1807,* aged sixty-three: he was buried in the Cathedral of Mozambique, and he wrote his own epitaph in the *Lyras*—

Pôr-me-hão no sepulchro
A honrosa inscripção:
—“Se teve delicto,
So foi a paixão,
Que a todos faz réos.”†

“The “Proscript of Africa” is described as a manner of “Tommy Moore,” a short stout figure, with blond hair, bright and penetrating blue eyes, and a pleasing spiritual countenance: his address, at once frank and courteous, won every heart. He was a dandy, delighting in battiste shirts, laces, and embroidered kerchiefs; he left some forty coats, some peach-coloured, others parrot-green—a wardrobe which suggests “Goldy’s” bloom-coloured preferences. The portrait prefixed to the favourite edition was “eliminated from the depths of his self-consciousness” by the artist, Sr. J. M. Mafra. It shows the poet very precisely as he was not, tall, thin, twenty-four, not forty-eight, with long dark flowing locks, melancholy regular features, and irreproachable top-boots—in jail.

Gonzaga is still the popular Brazilian poet, and amongst the Latins he will take rank with Metastasio. Some of his lyrics are remarkably operatic—who does not remember the Italian of—

São estes os sitiôs?
São estes, mas eu
O mesmo não sou.

Almeida-Garrett laments his “fatal error” in not devoting himself to national subjects: yet his pastorals, like his politics, are destined to a long life. His hand may evidently be traced in the *Cartas Chilénas*: ‡ some judges declare that the master’s touch

* Not in 1809, as MM. Wolf and A. P. Lopes de Mendonça say.

† They shall ‘grave on my tomb
These words of fair dealing,—

“If the crime was his doom
’Twas but error of feeling,
Which makes all to err.”
“*Lyras*,” Vol. ii. Part 2, 17.

‡ For instance, in the following lines
 (“*Epistola a Critillo*,” p. 25),—

“Nem sempre as aguias de outras aguias
nascem,

Nem sempre de leões leões se gerão:
Quantas vezes as pombas e os cordeiros
São partos dos leões, das aguias partos.”

Anglicè.

“Not always eagles are from eagles sprung,
Not always lions are by lions got;
How often happens it that the doves and
lambs
Are born of lions, are of eagles born.”

I have already alluded to this satire,
which will be read as long as there are
pompous governors and silly men in high

is not there, others opine that it is. He has left certain prose juridical studies, especially on usury and education, which still remain in MSS.

In poetry Gonzaga is always as he called himself, *O bom Direcêu*. Remarkable for grace and naïveté his erotics contain not a trace of coarseness: they are sentimental, dashed with a tinge of melancholy, which of course deepens in the gloom of his prison. As is the case with all the better Portuguese poets his style is remarkably correct, and his language studiously simple, withal sufficient. Recognizing the fatal facility of rhyme in his mother tongue he binds himself, by stringent rules, in grave and acute consonances, rejecting the former in his most laboured pieces. The *Lyras*, like the productions of the Minas school generally, are hardly to be translated adequately in foreign verse.*

The last great inhabitant of the house was the councillor and senator Bernardo Pereira de Vasconcellos, † whose father, Dr. Diogo Pereira Ribeiro de Vasconcellos, had bought it very cheaply when the heirs-at-law lost their papers. The "Franklin" or "Adams" of the Brazil was born at Ouro Preto, and died paralytic at Rio de Janeiro, leaving a history, which is that of his young country's liberty. Being unmarried, he bequeathed the tenement to his sister, D. Dioga, of whom a terrible tale is told: she was afterwards married to a Frenchman, still living. Thence it passed into the hands of the present owner, D. Jeronymo Maxiano Nogueira

places. It has all the mystery, and much of the genius, of Junius. Claudio Manuel and Ignacio José de Alvarenga Peixoto are also suspected of having assisted in writing the *Cartas* (Introduction to *Cartas Chilenas*, by Luiz Francisco da Veiza. Laemmert, Rio de Janeiro, 1863). Varnhagen (*Épicos Brasileiros*, p. 401) suggests that the author may have been Domingos Barboza Caldas, who was banished to the Nova Colonia. It is the custom to depreciate these letters; but no one can assert of the author—

"The lessons he taught mankind were few,
And none that could make them good or true."

Dr. Muzzio, who I have said is a hard student of poetry, believes that the *Cartas* were written by the Minas school, and that they show the hand of Gonzaga.

* MM. de Montglave and Chalas have wisely preferred prose. M. Ruscalla, D. Enrique Vedra, and Mr. Ifland, have given

them an Italian, Spanish, and German dress (M. Ferdinand Denis, "Resumé de l'Histoire Littéraire du Brésil," chap. 5, p. 568, and Ferdinand Wolf, *Le Brésil Littéraire*, chap. 7, p. 66). Of the three principal Brazilian poets not one has yet reached a country which reads thousands of rhymes like these,—

"The Royal Poet has a few words to say
About working men and the railway;
We have now got down the great Broad
Gauge,—

I hope it will increase our trade."

† He must not be confounded with José Teixeira da Fonseca Vasconcellos, First President of Minas, and created Visconde de Caeté; the latter was one of those who, on Jan. 9, 1822, elicited from D. Pedro I^{mo} the exclamation famed in Brazilian history as "O Fico"—"the 'I remain.'" B. P. de Vasconcellos and his sister were popularly known as Jupiter and Juno.

Penedo. On the right is the Casa do Mercado, with mules tethered in front of the large veranda, and yellow walls. Opposite it stood the Pillory, which, some thirty years ago, was pulled down by some young men by way of spree. To the south of the little square is the Church of S. Francisco de Assis. The outside is handsome, but the projecting façade shows two Ionic pillars ungracefully converted into pilasters. Over the entrance are steatite carvings by the indefatigable "Aleijado," showing a vision of the Patron, and above is a sepulchran cross. The yellow doors are of solid wood, cut into the usual highly-relieved bosses. In the interior are the normal six side-altars, a profusion of pictures let into the whitewashed wall; a fanciful choir balcony; a large ceiling fresco of Santa Maria surrounded by angels, and the Trinity on life-size figures of painted wood. The pulpits at the entrance of the sacristy are of soapstone, well cut, and recalling to mind the far-famed "Prentice's bracket."

Further down to the south-east is the N^a S^a das Mercês dos Perdoês, so called to distinguish it from the other Church of Mercies: it is a single-towered building, still unfinished outside. To the north-east is N^a S^a da Conceição, the Matriz of the eastern parish, called "de Antonio Dias," from the famed old Taubatiense, who settled here in 1699, and of whom all but the name is forgotten. It was once the richest church in the place, now it is a long whitewashed building, gilt, but mean and tawdry. Here on Feb. 11, 1853, were deposited* the mortal remains of "Marilia formosa"—Rosa Mundi, non Rosa Munda, whose story I have been compelled to strip bare of all its romance. To the south-east is N^a S^a das Dôres, and far to the east rises the Alto da Cruz, before mentioned.

Returning to the Praça Publica we visit, on its west, the largest church in the "Imperial City of Ouro Preto," N^a S^a do Carmo. Based upon a high and solid platform, it is externally a huge barn, with a bay façade, decorated as to the entrance with cherubs and flowers in blue steatite, stuck on to the grey-yellow sandstone. The two belfries are of the round-square order, with pilasters where corners should be. It has glass windows, here a sign of opulence: the inside is remarkable only for gaudy

* I am told in the third catacomb on the Epistle side, a kind of family vault. Lately, when it was opened, a skull was

shown as that of D. Maria; but it had evidently not been worn by an octogonarian.

hangings of crimson and gold; and the choir is supported by two columns and a pair of pilasters shaped like gigantic balustrades, a kind of "barrigudo" style, which deserves to be called the Flunkey-calf Order. The little catacombs of the Brotherhood are on the south, and detached. The Capital of the Gold and Diamond Province has not yet a public cemetery, and her sons must still be buried in their churches. This is somewhat too primitive for 1867.

In the street, to the north of the Carmo, is the theatre, known by its yellow wash: it claims to be the oldest in the Empire. The house belonged to a certain Coronel João de Sousa Lisbôa, also a victim of the royal tithes: he was declared bankrupt, yet it is said that the property, when sold, left no deficit. It has lately been repaired at the expense of the Province, and it is usually occupied by amateurs, who perform always respectably, sometimes remarkably well. The very civil *Impresario*, a Portuguese, led us round the house, whilst his company were rehearsing. The interior is laid out in the democratic style of the United States, here generally adopted; all the circles are open, and a single central box, the President's, fronts the stage. I much prefer this disposal to the European exclusiveness of pens and pews; the prospect is more pleasing, and there is better ventilation, always a grand desideratum; moreover, civilisation here does not demand the "dress-circle" to be kept "select," nor does your coat determine whether you are god or swell.

To the far south of the theatre is the old Tyburn, the Morro da Forea, or Gallows Hill.* It was levelled at an expense, they say, of ten contos (£1000); for an intended Industrial Exhibition, which proved the veriest failure. The projecting mound should be visited for the sake of the view. Thence we fall into the Rua de S^{ta} Quitéria, execrating its slope and its abominable pavement, and finally the Rua dos Contos lands us where we set out.

During our short stay at Ouro Preto, a glimpse at society left many pleasant impressions, and we could hardly understand those foreigners who complain that it is "not the style of thing to which they are accustomed." We spent a musical evening of many "modinhas," with the agreeable family of the ex-Secretary to Government, José Rodrigues Duarte, whom I afterwards met on the Rio dos Velhas; I also made the acquaintance of D. Antonio de Assis Martins, of the Government Secretariat, and part editor

* The pillory was for whipping, exposing limbs, and minor punishments.

of the Almanak de Minas. Although a Conservative he has been assisted by the Liberal authorities, and indeed such works deserve not only local but general attention. They here represent the issues of those historical societies, ever increasing in the States of the North American Union, and they prove to the Old World that the young, whilst looking to the Future, has not forgotten the Past. In times to come the historian will derive from them invaluable assistance.

Party feeling runs high at Ouro Preto, as it did amongst us when unbreeched boys were asked—"Are you for Pitt or Fox?" And here a word upon this most important subject in the Brazil. Europeans and foreigners, who, hastening to make fortunes, hate every excitement which can interfere with the money market, are very severe upon the "arid and acrid politic" of the land.* They never think that the excitement of partizanship is a phase through which all juvenile societies and governments must pass, like the hot youth of the individual. "Un peuple nouveau, positif par conséquence," has to provide for its physical wants, to establish civil order, and to secure life and property: it will indulge in wars, and other calamities must occur: the breathing time is necessarily spent not in science and philosophy, the highest aims of its later life, but in religious functions, and in adjusting its political questions. And indeed these are the two noblest exercises of youthful human thought, thus embracing all interests between heaven and earth—Um die Erde mit dem Himmel zu verbinden. Nor should it be otherwise: the most wholesome sign in a young people is a determination to enter into "the affairs of the nation," affairs which older communities, finding the machinery too complex for the general comprehension, are fond of abandoning to professional thinkers. Of course this laudable curiosity will often degenerate into violent and personal party feeling, but none will condemn the useful because it is open to abuse.

I find in the Brazil another symptom of strong and healthy national vitality. Men wage irreconcilable war with the present; they have no idea of the "Rest and be thankful" state. They

* The pleasant operation, parentally called "telling you of your faults," is nowhere endured with a better grace than in the Brazil. There is nothing that a

stranger may not assail, provided he show a friendly spirit, not a mere desire to blame.

balance "Whatever is, is good" by the equation "Whatever is, is bad;" yet they are neither optimists nor pessimists. They have as little idea of "finality" as have New Yorkers. They will move and remove things quiet, and they will not leave well or ill alone. They are not yet, happily—

Men of long enduring hopes,
And careless what the hour may bring.

Were infanticide disgracefully prevalent amongst them—it is rare as in Ireland—they would find some means of checking it. They are determined to educate their children, unlike the lands where the political physicians allow the patient to perish whilst they wrangle over how to save him—what physic is to be or is not to be given. They will emancipate their women* and convert them into "persons." They provide against pauperism, and they study to bring the masses up to the high standard of Prussia and Belgium. They would assimilate their army to that of France, not preserve a "sham army," or an "army of deserters." They would model their navy upon that of the United States, not "Monitors,"—and so forth.

There is everything to hope from a race with prepossessions for progress towards such a high ideal. Of late years in England it has been the fashion of the many non-thinkers to be facetious about "ideas;"† and yet I would ask what word best describes the suppression of the export slave-trade and its expression, the Sentimental or Coffin Squadron? What but an idea is it to send thousands of missionaries bearing the "bread of life" to the heathen of Asia, Africa, America, and Australasia, whilst the children of the kingdom starve at home? On the same principle some acute observer discovered that Napoleon Bonaparte always spoke of glory: Arthur Wesley invariably used the word duty. No truer measure of difference in mental stature between the Exile of St. Helena and the owner of

* At a time when common sense is demanding the political emancipation of women in England, it is curious to read an old book, the "Travels of Mirza Abu Taleb Khan" (1799-1803; Longmans, 1814), showing the superior liberty of the sex amongst Moslem races. He admirably accounts for the vulgar prevalent idea that the Asiatic wife is a slave, and proves that she has over her European sister immense advan-

tages in the management of children, property, and servants, and in real freedom, despite apparent seclusion, which in modest women is always voluntary.

† Of course this does not apply to those who do think. "Rebellions are never really unconquerable until they have become rebellious for an idea," says Mr. J. S. Mill with profound truth.

Apsley House can well be imagined. Duty was at once enthroned, if not deified; it was real, solid, practical, English (which mostly means routineer); whilst glory was romantic, flimsy, flippant, French. The effect was to exaggerate the involuntary evils which Bacon* and Locke carried out to extremest doctrines, bequeathed with all their immense services to our national mind. Hence the bit of truth in the often quoted saying, "a nation of shopkeepers," which still stings too hard. The one-sided view of life made the eye say to the hand, "I have no need of thee." And worse still, it pitched unduly low the tone of thought by satisfying men with a moderate tangible desideratum, and by ordering the spirit to go so far and no farther. For what is Glory, rightly understood, but Duty nobly done, and honourably acknowledged by the world? Is it not the temple of Ideality, to be reached only by the steady plodding path of Reality?

* Thus a popular writer of the present day gravely informs us that Bacon's way is "the only way of procuring knowledge."

CHAPTER XXXVII.

TO ITACOLUMI PEAK.

Pelos ingremes trilhos tortuosos
Da Serra Altiva, que os Cabeços ergui
Calvos, arripiados.

(Joaquim Norberto de Souza Silva.)

THE evening of the last day showed thick and heavy vapours surging up from the lowlands, and careering over the Peak. All judged it to be a sign of cold, perhaps of snow. I augured, and too rightly, that it was rain. Heavy showers fell at intervals during the night, and the morning was misty. We were to be guided by Sr. José da Costa Lana, an employé of the Comendador. He opined that the clay-paths or rock-streets would be slippery, and that the hangings of purple cloud upon the summit would conceal the view. We resolved, however, to take our chance, and about 8 A.M. we found ourselves upon the Marianna road.

Presently we turned off to the south, and making easting, reached the little church of Padre (João de) Faria (Fialho), another ancient colonist: a fine Cruzeiro or stone-cross stands in front of it. In the hollow lies the "mine of Padre Faria," now filled up with rubbish. It dates from the first Golden Age of Minas: the "old men" have run levels into the hard lode, and the position on a hill side will enable it to be unwatered without much pumping: therefore Mr. S. Ollivant, of Ouro Preto, proposes to exploit it by means of a Company. The main auriferous veins dip northwards, and the lateral branches form zigzags in all directions. The material is "Carvoeira" (place of coal) or rich Jacutinga, Pedra Muláta (Adularia), a felspar containing gold, sometimes in sight and sometimes not, and finely disseminated spots and lumpy lines of arsenical pyrites. The precious metal is found also in pot-holes (panellas), in

cavities called "formigueiros" or ant-holes. The assay gave a carat of 23 and 23·3, and the loss in treatment was 5 per cent.

Turning to the right, we crossed a spur of ground, and fell into the "Funil" Valley; over the torrent rushing down the deep black gap is thrown a very shaky bridge, with the "garde-fou" on the ground. Here is a small cascade which perhaps merits its romantic name, "Cachoeira de Cintra."* After a long elbow to the east, we turned westward, and began a serious ascent, which presently showed us a clump of white houses, in which we recognised Passagem. Marianna and its pretty basin are hidden by a hill, but a quarter of a mile ride to the left shows them in bird's-eye plan. From the episcopal city there is a line of ascent, but it is described as a kind of gulley, and many of the citizens had never heard of it.

On these heights we passed fellows with pistols slinking about the bush: they had probably been baulking the recruiting officer. In the Brazil, where leagues are many and where men are few, people readily follow the precept of Montesquieu, "If you are accused of having stolen the towers of Nôtre-Dame, bolt at once." Here "miserum est deprensi," not for that sin only, but for all offences. There were two places, mere ledges of rock with loose stones, up which the mules had to spring like goats. The vegetation dwindled as we rose higher, and the ground was clothed with the dwarf Sumará and other Bromelias. These may be compared with the "arbres des voyageurs" in various regions. A full-grown plant gives a pint of water, collected between the stalk and the bases of the leaves. When fresh it is pure, wholesome, and free from vegetable taste, but not "nectar." After a time of drought the fluid becomes turbid, a fine black mould collects in it, and dead insects and live tadpoles, especially those of a small pale yellow frog (*Hyla luteola*), require it to be filtered. The shrubby growth suggested the Carrapato-tick; but we are now above his level.

After an hour's ride we reached the last and highest spring, and here the two negroes, who carried the provision basket, declared they would await us, as we were now close to the "Stone." The proposition was at once overruled. Itacolumi Peak rose straight before us, now a spectre looming tall through the grey

* A friend told Southey, the historian, that the lands around S. Paulo, the city, reminded him of Cintra. The comparison

would have been juster if applied to the Itacolumi neighbourhood.

mist, then completely wrapped in cloud-swathe, then standing out with startling distinctness. It looked like a diamond edition of the "Serra do Caráça," and indeed the material is the same. It also reminded me of Pilot Knob, Mo., where 700 feet of specular iron are piled in "masses of all sizes, from a pigeon's egg to a middle-sized church." Both mother and child seem to change shape when viewed from each hundred yards. But a belt of impassable forest lay between us and our bourne, and these giants always look much nearer than they really are. Therefore we "sprang" the niggers.

Many places in the Brazil are called "Itacolumi." There are two others in Minas—one to the west of Itambé, called also from its seven summits "Sete Peccados Mortaes:" another is on the right bank of the Upper S. Francisco, south of Paranaguá, and there is a third and a fourth to the north-west of Maranhãõ. The word is properly rendered "Pedra e Menino," Stone and Pappoose (Red-skin child). Mr. Walsh mistranslates it "child of stone;" and he is followed by Sr. Norberto de Souza Silva, who explains "Ita-comuni" by "Mancebo de Pedra."* It is also written "Itacolumy," and more exactly "Itacolumim."†

This Peak has given its name to a rock, or rather to three very different kinds of rock. The older writers apply "Itacolumite" to a white or yellow sandstone, flexible like a plate of gutta percha, termed a "great geological curiosity" by our press. It is found in Georgia and North Carolina, and it greatly resembles that of the Lower Himalaya, in which thin layers of the silicious granular matter are associated with small plates of talc. The "Pedra elastica" was described two centuries and a half ago by the Padre Anchieta. Dr. Charles Wetherill (American Journal of Science and Art) declares that the pre-

* O alto cume
Do Itacolumi, gentil mancebo
Que o Indio converter-se em pedra viva.

(A Cabeça do Martyr).

† Curious to say, Sr. B. J. da Silva Guimarães (p. 408, Poesias; Rio de Janeiro, Garnier, 1865) declares that "Itacolumy" was a name substituted for "Itamonte" by the poet Claudio Manoel. Yves D'Evreux corrupts Curumim to "Kounoumy;" perhaps, however, the sounds were hardly distinguishable. He gives as the ages of mankind,—1. Peitan, babe; 2. Kounoumy miry, child; 3. Kounoumy, adolescent; 4. Kounoumy Ouassou, man; 5. Ava

(aba), middle-aged; 6. Thouyuaë, old man. St. Hil. (III. ii. 261) gives "Curumim," garçon, in the dialect of the Aldêa do Rio das Pedras, and the Tupy Dictionary translates "Curumim" by Menino. The Indian *r* was changed to *l* by the colonists, who also docted the termination. I find a distinct labial nasalization like the Dewangari ऋ, somewhat like a French *i* pronounced through the nose, and as in the Portuguese *Jardim*. The Iberian tongues take a pride in pronouncing all their letters, and it is regrettable to see a word written as it should *not* be spoken.

vailing opinion as to the elasticity of the stone resulting from the presence of mica is erroneous, and that if a thin plate of this sandstone be subjected to examination by the microscope, the flexibility will be found to depend upon minute articulations where the sand-grains interlock. In my specimens the stone abounds in light yellow mica, and when the friable material crumbles, the two main component parts at once separate. Near São Thomé das Letras, before alluded to, there is a fine quarry of this elastic variety. In the deeper parts the strata become thin, and gradually pass into natural slabs of the finest quartzite, stratified quartz, of course losing all elasticity.

This flexible stone is not the matrix of the diamond and the topaz, although sometimes associated with it. Diamantine "Itacolumite" is, as will presently appear, a hard talcose rock of distinctly laminated quartz, white, red, or yellow, granular, with finely disseminated points of mica: it is either stratified or unstratified. In Minas the name is popularly given to the refractory sandstone grits, and to a fine crystalline rock evidently affected by intense heat. Curious to say, Itacolumi Peak consists neither of this, nor of that, nor of the other, yet its name has been given to all three.*

The last formations, laminated quartz and sandstone grits, form with Itaberite, almost all the Highlands in this part of the Brazil. Considerable confusion is often caused by the triple use of the word. Thus M. Halfield† explains Itacolumite by "quartzo-schistoso, schisto de quartzo, micachisto-quartzoso, gelenk-quartz, and elasticher sandstein." In school-books each author interprets it his own way. It would be well to limit it, as Gardner does (Chap. 13) "to hard iron slate."

Leaving the water, we turned westward, passing the Capão dos Inglezes or "Tree Motte" of English pic-nickers, which reminded me of a certain estancia at Tenerife. I cannot find that any

* Allow me, as regards the term "Itacolumite," to quote what M. Bonbée said with great truth about the groups of the Transitional formation known as Silurian and Cambrian,—“I cannot understand the necessity of going to seek in a corner of England the type of divisions and a classification of so important a nature which is found fully developed in Normandy and Brittany, Cevennes, Ardennes, the Pyrenees generally, &c.” Again, what can be

worse than to substitute "Devonian" for "Old Red Sandstone," for a system which extends not only over Northern Europe, but also over Northern America. "Itacolumite" in its three several senses belongs to the globe, not to Minas Geraes, to which but not by which it has been limited.

† Relatorio, on p. 78. He might have termed it more correctly flexible Itacolumite, granular or quartzose Itacolumite, and crystalline Itacolumite.

of the writing travellers have made the ascent, yet all the silent men have so done. About this Capão is a fine site for a small settlement: the hydropathist who "müss gebirge haben" will here find in the dry season the clearest air and the purest water. Our next operation was to lose the way amongst paths ramifying to every rhumb, and we went too far west towards the Itatiaia village which gleamed white upon its hill. At last, after a tough struggle over rocks and slides, we passed round to the south of the "Stone," and after three hours' riding stood a little above it. The winding goat-track numbered some six to seven miles, and the direct distance cannot be more than three, for we heard the clocks of Ouro Preto striking the hour.

After a fight with the high winds I boiled the thermometer, which gave 5860 feet,* still showing that the culminating range in this section of the Brazil is, as in Eastern Africa, the Maritime Chain.† We then proceeded to examine the singular formation, and the iron-stone so distracted my bearings, that they deserve little confidence. The base is a short ridge, a latitudinal expansion, a vertebra in the "Serra Grande" or do Espinhaço, which here trends from south to north. The material is "Jacutinga," soft micaceous and ferruginous schist, "Itacolumite" proper or hard iron slate, and quartzose micaceous slate, with a dip of 65°. The "Ita" rises on the western side of a quoin-shaped mass, bluff to the west: it is one of the many pikes and organs which at lower elevations are seen bristling over this part of the chain, and it is surrounded by huge blocks and boulders of all shapes and sizes. To judge by the eye, it lies 500 to 600 feet below the highest point of the parent-bluff, which, seen from the west, has a tabular form; and thus the extreme height above sea level would be about 6400 feet. The "Pedra" is a core of the hardest iron-slate, black and polished like a metal casting, and the surface shows joints but no stratification, whilst the sides are striped by wind and weather into vertical and inclined striæ. Formerly it

* The usual estimate is about 8000 palmas = 5733 English feet. Mr. Gerber has 1750 metres = 5727 feet, and Mr. Keith Johnston's last map 5750 feet. My observations on a level with the summit of the Pedra gave 5860 feet above sea-level (B. P. 202°50', Temp. 57°), or 2487 feet above Ouro Preto. At the Hermit's Cave below the "Pappoose" I obtained 5095 (B. P.

203°1', Temp. 59°) above sea-level, and 765 feet below the "Ita."

† Nearly half a century ago it was remarked that these Organ Mountains, where even small glaciers are found, would, like the Sant' Angelo Mountains of the Bay of Naples, supply the Fluminenses with ice, which they import at a high price.

could be ascended by a chain fastened to the summit; this aid has now disappeared, and nothing but a fly or a lizard could swarm up its smooth metal.

We then proceeded to view the "Columi." Seen from Ouro Preto it appears almost to touch the mother stone, a smooth slope intervening. It is found to be separated by a deep gap of loose humus, protruding rock, and decomposed vegetation, and the path is matted with a tangled growth of trees and shrubs, thorny bushes and lianas, which catch the legs like man-traps. Descending to the east, we stood opposite a dark mass of the same metallic formation and aspect as the upper feature; the shape was that of a gorilla's skull, not unlike, but about three times larger than the "Bosistow Logan Stone." Slipping down sundry rock-drops, we found below the eastern base a cross and a cave once inhabited by a hermit. A skull was lately picked up in this Troglodytic refuge, which the black guide called a "Sarão;"* and doubtless it has given shelter to many a Maroon.

Returning after a difficult climb to the breakfast-ground, we soon ascertained that the two negroes left to guard the provant had spent their time well—were drunk as drunk could be. They paid the penalty by not reaching home before midnight, and how they reached it at all without cat's eyes is still a puzzle to me. The last shred of mist had now been melted by the sun of noon, and the tall pillar glowed and glanced in the fervid rays like a bar of specular iron-stone. A little to the east of north † lay the city of Ouro Preto, sitting stiffly upon the hard lap of São Sebastião, with feet dipping to the stream-bank on its south. Behind it lay the brown lines of the Morro de Santa Anna, craggy, with ruined chapel; a little to the west of north stretched the blue lines of the "Serra do Caráça," and north the Piedade range, ‡ like a lumpy cloud, closed the horizon. On the south-west the jagged walls of S. José d'El-Rei struck the eye, and the rest was a tumbled surface of rounded hills subsiding into longer

* For Salão, a saloon. The skull was promised to me, or rather through me to the Anthropological Society of London. It was not sent, but this gentle hint may cause it to be forwarded. The direction of the Anthropological Society is No. 4, St. Martin's Place, London, W.C.

† M. Gerber's map places the Peak

south-east of Ouro Preto. Mr. Johnston's puts it too far to the south-west. I took bearings, but when protracted they proved useless.

‡ Mr. Gordon took an observation from the eastern side of the Peak base, whence the western point of the Serra da Piedade bore due north.

and more level lines as they reached the rim of the basin in whose centre we stood.

The descent was far more pleasant than the ascent, not always the case in Brazilian mule-travelling. The beauties of an enchanting prospect lay full before us, and thus we could enjoy the "unfading and inexhaustible pleasure which the face of Nature always gives when presented under new and varying aspects." In the lower levels smokes by day and nightly blaze show that the grass is being fired; the proceeding, however, is punished at this season with "posturas" or fines, because the birds, especially the fine game Cadorna,* at which dogs point, are nesting. This sensible idea deserves to be carried out beyond the limits of city jurisdiction. The afternoon was magnificent, and we returned long before sunset, delighted with our excursion, and grateful to our guide, Sr. Lana, who had made the toil so great a pleasure.

* S. Hil. (III. ii. 203) suspects that the Cadorna is the *Tymamus brevipes* of Pohl, and that the Perdiz (Ynambu, or Inambu) is the *T. rufescens*. Both words are taken from Portugal, and applied to birds of the New World, specifically, and often generically, different. The same was done with

"pheasant," "partridge," and "quail" in Northern America and British India.

The other common kinds of *Tinamus* are the Joo (*Tinamus noctivagus*), described by Prince Max. A larger species is the Macúca (*Tinamus Braziliensis*).

CHAPTER XXXVIII.

THE MINEIRO.

Die klaren Regionen
Wo die Reinen Formen wohnen.

Schiller.

SECTION I.

THE MINEIRO HISTORICALLY VIEWED.

BEFORE leaving the Imperial City, which is the modern type of old Minas, it appears advisable to give a sketch of its inhabitant, the Mineiro, who, like his ancestor the Paulista, is still the typical man in the Brazil.*

The first colonists from Portugal settled in S. Paulo in the earlier half of the sixteenth century. As happened to the refugees from England, the morgue of the old country represented them to be mere roturiers.† The accurate and pains-taking Santista Fr. Gaspar Madre de Deus has, therefore, thought proper to investigate the origin of the settlers at Santos, now the port of S. Paulo, and he has proved that they belonged to honourable families in Portugal and Italy.

The blood was, in fact, too honourable; it brought with it an almost insane vanity, commonly called pride of birth, and the immediate result was a deterioration of race. White women were rarely imported to a country which was in a chronic state of savage

* My space will permit me to touch upon the subject very lightly; moreover, throughout these volumes a variety of anthropological notes have been recorded wherever the subject suggested them.

† Both Paulistas and Portuguese can now afford to smile at the witticisms of the old comedy-writer Gargão.

Parece-me que estou entre Paulistas,
Que arrotando Congonha, me aturdiam
Co' a fabulosa illustre descendencia

De seus claros Avós, que de cá foram
Eu jaleco e ceroulas.

“ Methinks by Paulistas girl I stand,
Who full of windy ‘Mate’ stunn’d my
ears
With fabulous illustrious descent
From ancestors renowned, who hence de-
parted
In drawers and doublet.”

Maté I have explained to mean Paraguay tea.

war, and the settlers, as a rule, disdained to intermarry with the daughters of the Redskin. Yet, as in the United States, unions with the free-born but barbarous blood* were never held to be disgraceful, and in process of time some houses have come to boast their descent from the "Indian Princess."

But when agriculture began in earnest the African was imported, and the servile mixture, at all times and in all places a dishonour amongst white races, who in this point obey an unerring instinct, advanced at a rapid pace. I can quote the case of a city in Minas where amongst three thousand, or including the vicinity, five thousand souls, there are only two families of pure European blood. On the coast the colonists found opportunities of marrying their daughters to men from the Old World, and the lowest of "high-born beggars" was preferred to the wealthiest and most powerful of mule-breeds. But in the interior mulattism became a necessary evil. Hence, even to the present day, there is a strange aversion to marriage, which, in so young a country, forcibly strikes the observer. Men do not like to "marry for ever," and the humane Latin law, which facilitates the naturalisation of illegitimate children, deprives matrimony of an especial inducement. Brazilian moralists have long since taken the evil in hand, and have even proposed that public employment should be refused to those living openly in a state of concubinage. The day of sumptuary and domestic laws, however, is now departed, and men no longer respect rulers who cannot separate the private from the public lives of their subjects.

Presently to hunting red-skins was added another industry—gold-digging. Before the end of the century which witnessed the establishment of the first Portuguese colony, multitudes flocked to the Far West, and thus much of the noblest Paulista blood became Mineiro. The "turbulent riches of metals" did their usual work; a "colluvies gentium," displayed all the rowdyism and ruffianism which we of this day have witnessed in California, San Francisco, and Carson City. As was said of the Indians, the immigrants had neither "F., L., nor R"—Faith, Law, nor Ruler—and the motto of the moving multitude seems to have been—

Quem dinheiro tiver,
Fará o que quizer.†

* The Indians used to call negroes "Macacos da Terra"—monkeys of the land.

† Whoso money acquires,
May do all he desires.

As I am not writing a history of Minas, a mere sketch of events which distinguished her capital will show the spirit which animated the race.

Shortly after the "War of the Emboabas" the village of Antonio Dias was promoted, by the Act of June 8, 1711, to township, with the merited name of "Villa Rica." Between 1700 and 1713 the Royal Quint of gold had been raised upon the batêa or pan; in 1714, however, D. Braz Balthasar Silveira, in its stead, established capitation Fifths and toll-houses (Registros or Contagens). The latter aided in the collection by taking dues upon all imports. In 1718 they were dismembered from the Fifths and were farmed out. In 1719, when D. Pedro de Almeida, Conde de Assumar, Governor and Captain-General of Minas, proposed, instead of the poll-tax, to erect public mints and smelting-houses, serious troubles took place. At Ouro Podre, the richest place adjoining Ouro Preto, some two thousand men rose in arms, and about midnight of June 28, razed the foundations of the building that had been begun, and attempted to massacre the Ouvidor Geral of the Comarca, Martinho Vieira. This violent partisan fled, leaving his house to be plundered. On July 2 the mutineers compelled their Municipal Chamber to take the van, and, marching to the "Leal Villa de N^a S^a do Carmo," now Marianna, forced their fifteen conditions upon the Governor.* Some of the articles signed by the contending parties are quaint in the extreme. The authorities are accused of "working more miracles than Santa Lusia," in defrauding the people, whilst No. 11 runs thus: "They (the insurgents) require that the Companies of Dragoons shall feed at their own cost, and not at the expense of the public."

Thus the mutineers obtained their pardon, which was, of course, officially null. The ringleaders (os cabeças) returned to Villa Rica; and, in the pride of success, divided the spoils of war. The Mestre de Campo, Pascoal da Silva Guimarães, disposed of various appointments; his son, D. Manoel Mosqueira da Rosa, elected himself Ouvidor; and Sebastião da Veiga Cabral, becoming President of an independent organisation,

* The letter of the Count of Assumar, describing this "horroroso motim" is printed in the Almanack, 1865 (p. 101—104), and the conditions which he signed

in Almanack, 1864 (p. 56). Southey (iii. 38, 158—161) has translated the Count's report almost literally, and has thus taken a one-sided view of the affair.

instanced, in a friendly way, the Governor to take refuge at São Paulo.

But the Count of Assumar was now prepared for energetic action. He sent a Company of Dragoons to Villa Rica, seized Cabral and despatched him to Rio de Janeiro. On July 15 he laid hands upon the rest of the "poderosos," "with many other accomplices, whose multitude caused him to forget their names;" amongst them, however, were Frei Vicente Botelho, Fr. Francisco de Monte Alverne, João Ferreira Diniz, and Felipe dos Santos. The latter had been sent to Cachoeira do Campo with the view of raising the people, described by their ruler, in his "grand way," as a "vil canalha." He was chosen as an example to terrify the captives, and was torn to pieces by four wild horses in the streets of the capital. Pascoal, the ringleader, was sent to Lisbon, where he brought an action against the Governor, and died before he could establish his innocence. The rest, "who had been blinded by the demon," were imprisoned, and their goods were burned without form of process on the hill of Ouro Podre, which thence took the name of Morro da Queimada.*

Immediately after this affair, Minas Geraes was dismembered from the captaincy of S. Paulo, and Villa Rica was made her capital. On August 18, 1721, she received her first Governor and Captain-General, D. Lourenço de Almeida. He established the foundries and mints, which at once produced counterfeiting. In 1730 a society was established at Rio de Janeiro to defraud the Quint, and one Ignacio de Souza Ferreira, and Manuel Francisco, a man of rare mechanical ability, were sent out to find a proper location. They chose a "secular and fearful" forest at the foot of the Great Serra,† near the place now called S. Caetano da Moeda—of the Coin. The affair came to the ears of the Viceroy; he ordered the Governor of Minas to make inquiries, and presently two men turned "king's evidence." The house was surrounded by armed men, the chiefs were taken, and, in 1731, Manuel Francisco was sent to the scaffold. Justice was executed with such severity, and the accomplices were so

* The Hill of the Burning.

† Hence the range took the name of "Serra da Moeda"—of the Coin. There are still legends of treasure buried near the site where the stamping house stood. Other

establishments for falsifying money were set up at Catas Altas de Mato Dentro, and elsewhere. The coined pieces were as pure as those issued by the Mint, but they had forgotten to pay the Royal Quint.

numerous, that Desembargadores were sent from Rio de Janeiro, and they brought actions against the authorities that had shown excess of zeal. In 1735 (Pizarro) the "Mint" of Villa Rica was abolished, and from that time forward only gold dust was in circulation.

This event, combined with the immense increase of contraband, rendered foundries and mints well-nigh useless. On March 20, 1734, a Junta of the people, assisted by delegates from the municipal bodies, met the second Governor, D. André de Mello de Castro, Conde das Galveas, accepted an annual composition of 100 arrobas, 3200 lbs. of gold. But the palmy days of "pick and pan" were ended. In the next year a capitation tax was levied, shops and stores were heavily burdened, and gold was rated at 1\$500 per oitava. These measures caused the greatest dissatisfaction, and finally, by Royal Letter of Dec. 3, 1750, D. José re-established the Casas de Fundição, and accepted as Quint one hundred arrobas of gold.

But Portugal, the Paterfamilias, was very fond of borrowing, on every possible pretext, from the rich and unhappy bantling over the water. Imposts were devised to assist in rebuilding Lisbon after the earthquake of Nov. 1, 1755. These were continued by Royal Order of Jan. 4, 1796, when the Ajuda Palace was burnt down. The disimos or tithes were collected with such vigour that those who farmed them were, with rare exceptions, ruined. Tolls levied at ferries were sent to the Home Treasury, which was further swollen by fees paid on taking office, or rather by the sale of posts under government. The salt tax was made a burden. Stamped paper was not forgotten, and a forced "literary subsidy" was imposed by Royal Order to defray the charges of provincial education, which was never given. And, beginning with 1711, large subsidies, donations, and benevolences—voluntary, but under pain of the galleys—were required for the extraordinary expenses of the Court of Portugal. Such was the colonial system of those days, nor can any country in Europe charge its neighbour with conduct worse than its own. The inevitable end was to drive men to independence.*

* The Viscount of Barbacena had brought out the last orders for the voluntary subsidy in the matter of the Ajuda Palace; at a time when the arrears of Fifths amounted to 700 arrobas, 22,400 lbs. of gold, equal

to all the actual circulation in the Province. On the trial of Gonzaga, it was proved that the poet had urged the Intendant to levy, not one year's Fifths, but the whole arrears. He pleaded that he had so acted in order

The memorable "Inconfidencia" was, it has been seen, the first blow struck. Liberty lay bleeding and exhausted for a time; but sixteen years after that tragedy D. Maria I. and D. João landed at Bahia, and the colony became at once the mother country. When the constitutional movement began, the Ouro Pretans arose with a will, and chose for their leader Lt.-Col. José Maria Pinto Peixoto. The last of the Governors and Captains-General, D. Manoel de Portugal e Castro, closed the gates of his Palace, the doors were burst open, and the cannon was taken out to command the streets. Next morning (Sept. 21, 1821) the people filled the square, shouting "vivas" for the Constitution. They required the Municipal Chamber to elect a Provisional Government, which at once entered upon its functions, headed, much against his will, by D. Manoel. A second Provisional Government was installed on May 20, 1822; political agitation continued, and the people would not recognize the future founder as provisional ruler of the Empire, or Prince Regent. D. Pedro, with his usual manliness and daring, alone and after an amusing scene at a place called the "Chiqueiro," preceding his escort, on April 9, 1822, entered the city; he was rewarded with an enthusiastic reception.* On Jan. 30, 1823, the Comarca do Ouro Preto was created, and Villa Rica retook her old name; which, however, had never been forgotten by the people. The first President of the Province of Minas Geraes, José Teixeira da Fonseca Vasconcellos, entered upon office Feb. 29, 1824.

Nine years after this event troubles broke out at Ouro Preto, but they were easily suppressed. In 1842 the disturbances were of a much more serious nature, and assumed a form bordering upon secession. Since that time the Mineiro has been tranquil. But the past should warn statesmen that a race so fiery † must have no reasonable subject of complaint, if it be expected to remain quiet and content. Its sole grievance at present is want of postal and telegraphic communication, of roads, railways—as has been seen, there is not yet a kilometre of rail—and river

to convince the Home Government that the measure was impossible, and thus to obtain a remission of the debt. But the judges were of opinion that his object had been to increase the irritation of the people, and more especially as the furious Tira-dentes had already mooted the question with an intention which he scorned to deny.

* The second visit was not so fortunate, and immediately after it the Emperor resigned.

† In this point they suggest the Basques, of whom the celebrated Gonzalo Fernandez de Córdova used to say that he would rather keep lions than govern them.

navigation ; with these improved it may confidently look to a great and glorious future.

SECTION II.

THE PHYSICAL MAN.

I will here offer a few remarks upon the descriptive anthropology of Minas Geraes.

Before the stranger has passed a month in the Brazil he begins to distinguish the native from the European. The Brazilian * bears the same physical relation to his ancestor the Portuguese as does the American of the Union to the Britisher. During the last three centuries and a-half the New-World European has developed a more nervous temperament ; he has become lighter in weight—the maximum mean in the masculine gender is usually assumed, in the Brazil, at four arrobas = 128 lbs., about nine stone—and rather wiry and agile than strong and sturdy. Hence the Brazilian calls himself “Pé de Cabra,” † or goat-foot, opposed to the Portuguese, who is “Pé de Chumbo,” foot of lead. The latter also is readily recognized by the thickness and coarseness of his nose,—“noscitur a naso,” like the old Engländer of sanguine and lymphatic diathesis in New England. Here the nervous temperament accuses itself in the thin, arched, and decided form of the organ, with the nostrils convoluted, and strongly marked *alæ*, and the high “bridge,” which gives the Roman profile, full at once of energy and finesse.

The older comparative anthropologists, from the great monogenist Hippocrates to Buffon, Prichard, and Buckle, ‡ made the great differentiator between nation and nation “climate ;” *i.e.*, the aggregate of all the external physical circumstances appertaining to each locality, in its relation to organic nature. And the first modern school being orthodox monogenists, boldly asserted that black and white skins—for the question was then but skin deep—were mere modifications of each other, produced by

* Brasileiro opposed to the Portuguese, or Filho do Reino, unpolitely called *Portúga*, Pé de Chumbo, Bocado, Marinheiro, Gallego, and so forth.

† An opprobrious term invented by the

enemies of Brazilian Independence, and accepted in a modified signification by the people.

‡ Who moreover (i. 567) speaks of the “fanciful peculiarity of race.”

the complicated agencies which they evoked. This palpable absurdity was rejected by serious students almost as soon as it was propounded. Presently the anatomists and physiologists, pressing to the other extreme, everywhere detected fixity of type with race, and race only, in history. "Race is everything," said Dr. Knox.

I venture to opine that the truth lies between the two, and that both schools have generalised upon insufficient grounds. "*Si l'anthropologie est encore si obscure, c'est peut-être qu'on a beaucoup trop raisonné sur cette science et trop peu observé.*" Thus says Auguste de St. Hilaire in 1819, and the dictum still deserves to be written in capital letters.

The notable approximation of the Ibero-Brazilian and the Anglo-American of the Union, two peoples sprung from two distinct and different ethnic centres, can hardly be explained except as the result of local causes, which have assimilated the advenæ to the autochthonic type, the so-called Red Man :* hence, for instance, the beauty, the smallness and the delicacy of the extremities, which is often excessive, degenerating into effeminacy: in the Portuguese and English the hands and feet are large, fleshy, and bony, evidently made by and for hard use. Hence, too, the so-called "hatchet-face," common to the citizens of the Empire and the Republic, the broad and prominent brow, the long thin cheeks, flat or concave, the features generally more sharply marked, and the protruded, massive, and often cloven chin, the quadrangular mentum, that striking peculiarity of "Indian" † blood. In both, too, the hair is evidently changed: it loses the Caucasian or Aryan "wave," and becomes straight, lank, glossy, and admirably thick. The whiskers are often "clear sown," and thus the facial pile is reduced to the "goatee," "which," says M. Maurice Sand, "donnerait l'air vulgaire à Jupiter lui-même." ‡

* I am pleased to see that Eschwege denies the copper colour to the American races as a rule. They are born of a whitish yellow tinge, and they become a sunburnt brown.

† The word "Indian," as Mr. Charnock warns us, properly speaking, means one born in the Valley of the Indus. But what can the unfortunate anthropologist do in these young days, when such terms as Caucasian and Turanian, Semitic, Hamitic,

and Japhetic, must still be used for want of better?

‡ I quote Mr. Sand without agreeing with him. The "goatee" is not only original; it also suits the features.

All tribes of Indians are not confined to a thin pile about the mouth, and growing only three inches long. There was one clan whom the Portuguese called from their large beards, "Barbados." The same may be observed in Inner Africa.

This modification of form and approximation to the Indian type I hold to be a fact, and I cannot explain it except as the effect of climate, which, in Hindostan, develops the lymphatic, and, in Utah territory, the nervous temperament.* This belief in "Creolism" may be heretical, and, if so, the sooner it is stated and disproved the better.† But the instances popularly cited to prove the absolute permanence of race, as the Parsees in Western India, and the Jews in Aden—to quote a few of many—do not touch the question. These tribes have moved over a small area of ground: they have made little departure in latitude, less in longitude. My observations come from the New World, where, with the exception of those that have passed over the frozen Arctic Sea viâ Behring's Straits, all mammalia are specifically different from those of the so-called Old World. Under similar conditions a distinct Creolism has been remarked by travellers in Australia.

The Mineiro—meaning the man whose ancestors, or at least whose father is born in the country—is easily known even amongst

* The "temperament," also, is a purely empirical system, which will cease to be regarded when the chemistry of the blood, of which it is the effect, shall have been sufficiently studied. The subject is too extensive for a foot-note, but it may, I think, be shown that the Luso-Brazilian, as well as the Anglo-American, has been modified morally as well as physically by climate, and has assimilated in national character to the aborigines.

To the high development of the nervous diathesis we must attribute the remarkable facility with which mesmerism, or animal magnetism, acts both in the Empire and in the Republic. A practitioner at São Paulo found three out of nine students subject to the influence. Extraordinary cases are cited. At Macció, in the Province of Alagoas, there is a girl, the niece of the Barão de J * * *, who, they say, can, by power of volition, give to a glass of water the smell, and, to a certain extent, the appearance of any liquor required—milk, wine, or liqueur: she has, moreover, produced in it distinct layers, each preserving its peculiarity. A committee of six medical men assisted at the trial, where, moreover, was a professional prestidigitateur, who confessed himself unable to understand, though he had often shown the trick in the way of trade, how the changes were

effected. Mr. Spenser St. John tells a similar story (ii. 262) of a woman in Borneo proper, who cooked one of his own eggs by simply breathing upon it.

It is now too late to ignore subjects so important as introversion, thought-reading, and medical clairvoyance. The majority of men, who have never witnessed the phenomena, will of course deride and dislike the subject. Not so he who seeks to understand the causes of things: he will hold it incumbent upon him to investigate the truth to the utmost, and he will modify his theories to facts, not facts to his theories.

† "The negroes who have been bred in the States, and whose fathers have been so bred before them, differ both in colour and form from their brothers who have been born and nurtured in Africa." (North America, by Mr. A. Trollope, Chapter 5.) Superficially we have all observed this. And the value of the observation is the greater because the author has no theory to support, and apparently is not an anthropologist. "Sous l'influence du contact de la race blanche (says M. Liais, *L'Espace Céleste*, p. 217), et surtout par l'effet du mélange qui tend à s'opérer, il se forme une race de noirs beaucoup plus intelligente que celle des nègres d'Afrique."

Brazilians, nor can his peculiarities be explained by "hot-air pipes and dollar-worship." He is a tall, lean, gaunt figure, which, when exaggerated, represents our popular long and lank D. Quixote. There is no want of the "intellectual baptism," innervation, vulgarly called "blood." The frame is sinewy and well formed for activity: it is straight as that of a Basque, not like the drill sergeant's, and even labouring men do little to bend them like our round-shouldered peasantry. The neck is long, and the larynx is prominent; the thorax often wants depth. The hips and pelvis are mostly narrow; the joints, wrists,* and ancles, are fine, and the legs are, as often happens amongst the Latin races, not proportioned in strength to the arms. Obesity is rare, as amongst the true Persians: it occasionally appears in men of advancing age, and it is considered *nullo curabilis* Banting. The short, square and stout-built Portuguese shape, osseous and muscular, is not, however, unfrequent. Amongst the offspring of English parents I saw seven of the gaunt nervous temperament and two of the John Bull.

Many of the women have plump and rounded forms, which run to extremes in later life, becoming pulpy or anatomical. Not a few possess that fragile, dainty, and delicate beauty which all strangers remark in the cities of the Union. The want of out-of-doors labour and exercise shows its effect in the Brazil as palpably as in the United States. The sturdy German fraus who land at Rio de Janeiro look like three American women rolled into one. Travellers are fond of recording how they see with a pang, girls and women employed in field work, and the sentiment is, I believe, popular. But they forget that in moderation there is no labour more wholesome, none better calculated to develop the form, or to produce stout and healthy progeny. They should transfer the feeling to those employed in the factory or the workshop.

The Mineiro's skin is of a warm dark brown, rarely lit up at the cheeks, and often yellow from disturbed secretion of bile, or from obstruction of the ducts, or from excess of choleic acid in the system, tinging the cutaneous blood vessels. It is, in fact, the tint of Portuguese Algarves, where the Moor so long had his home. Every variety of hue, however, is found, from

* According to Prince Max., i. 209—10, the women of the coast "Pourys" wore strings, or bark strips, round their wrists and ankles, "pour les rendre plus minces."

the buff colour of Southern Europe to the leathery tint of the mulatto. Here all men, especially free men who are not black, are white; and often a man is officially white, but naturally almost a negro. This is directly opposed to the system of the United States, where all men who are not unmixed white are black.

The skull is generally dolicocephalic, and it is rather coronal than basilar: rarely we find it massive at the base or in the region of the cerebellum: the sides are somewhat flat, and the constructive head is rare as a talent for architecture or mechanics. The cranium is rather the "cocoanut head" than the bull-head or the bullet-head. The colour of the hair is of all shades between chestnut and blue-black; red is rare; when blonde and wavy, or crisp and frizzly, it usually shows mixture of blood: it seldom falls off, nor does it turn grey till late in life—also a peculiarity of the aborigines.* With us the nervous temperament is mostly known by thin silky hair: here we have the former accompanied by a "mop." I have heard Englishmen in Brazil declare that their hair has grown thicker than it was at home: † so Turks in Abyssinia have complained to me that their children, though born of European mothers, showed incipient signs of wool—they invariably attributed it to the dryness of the climate. Though hair in the Brazil is indeed an ornament to women, it seldom grows to a length proportionate with its thickness. The deep-set eyes are straight and well opened: when not horizontally placed there is a suspicion of Indian blood: the iris is a dark brown or black, and the cornea is a clear blue-white—not dirty-brown as in the negro. The eye-brows are seldom much arched, and sometimes they seem to be arched downwards: the upper orbital region projects well forward. The mouth is somewhat in the "circumflex-accent shape;" and the thin ascetic lips are drawn down at the corners, as in the New England and the

* The same is remarked of the negro both in the Brazil and at home.

† Some attribute the improvement to the use of Xoxó or Chochó, the oil extracted from the kernels of the Dendé palm-nut (*Elæis guineensis*, whose pericarp yields the palm oil of commerce). The kernels are pounded in a mortar and ground between stones till reduced to a fine pulp: the mass is then beaten up in a bowl with

hot water, and the oily matter is skimmed off the surface. The Brazilians, before using it, place the Xoxó in another bowl with cold water, and expose it to the dew for eight or ten nights, changing the water daily. I am surprised that this article, so much used in Africa, and so much prized throughout the Tropics, has not found its way to England, where beargrease of mutton suet still holds its own.

asthmatic sufferers in England. The teeth, of dead white, are unusually liable to decay: they require particular attention, and thus the dentist is an important person.* Young men of twenty-five sometimes lose their upper incisors, a curious contrast of old mouth and young hair.

The expression of the Mineiro's countenance is more serious than that of the European.† In his gait, the slouch of the boor is exchanged for the light springing step of the Tupy. Hence he is an ardent sportsman, and the "country squire" delights in hunting parties, which extend from a week to two months. The nomad instinct is still strong within him, and he is always ready to travel: curiously enough, foreigners blame this propensity, and quote the old proverb about the rolling stone. All are riders from their childhood, and, like the northern backwoodsmen, they prefer the outstretched leg with only the toe-tip in the stirrup: this they say saves fatigue in a long journey; moreover, as they sit only by balance, they can easily leave the animal when it falls. Our hunting seat and the hitched-up extremities of the Mongol would be to them equally unendurable. It is to be observed that all the purely equestrian races ride either as if squatting or standing up; and both equally abhor what we call the *juste milieu*. As rupture is almost unknown where the leg is stretched out to its length, I must attribute this accident, so common amongst our cavalry-men, to tight belting the waist and to carrying unnecessary weight.‡ Like the Bedouin and the Aborigines of the Brazil, the Mineiro is able to work hard upon a spare diet, but he will make up manfully for an enforced fast. Self-reliant and confident, he plunges into the forest, and disdains to live with others and to cling in lines to the river-bank.

The race is long-lived, as is proved by the many authenticated cases of centagenarianism. Of the endemic diseases, the most remarkable are leprosy and *goître*.

* In a town of 15,000 souls, I have seen three dentists in one street. As in Europe, so in the Brazil, the best are those from the United States; it is painful to compare with their light and durable articles, the clumsy work of our country practitioners, and sometimes even of the Londoner.

† This is also an "Indian" peculiarity; all travellers mention the gravity of the Red Man's look; and some have commented

upon the acquired "moodiness" of the expression in the United States.

‡ I borrowed from the people a "wrinkle" which might be adopted to advantage by our troopers. When the animal is required to stand still, the rider, on dismounting, passes the bridle over its head, and allows it to lie upon the ground. Horses and mules easily learn to take the hint.

Leprosy, here called *morphéa*, and the patient *morphetico*, is by no means so common in Minas as in S. Paulo, where it spares no age, sex, or station. Yet the races are of kindred blood: the climates are similar, and the diet is the same. Here it is comparatively rare amongst the higher classes, and as in India and Africa, I have never seen a European affected by it or by its modification, elephantiasis. Various causes are assigned to the origin of this plague, once common amongst us.* Some derive it from the *Morbus Gallicum*; others from diet, especially from excess of swine's flesh: so in Malabar it is supposed to attack those who mix fish and milk, which is held to be the extreme of bile-producing alimentation. All agree that it is hereditary. The attack commences with brown discolorations on the white skin, and ends with mortification of the members, necrosis of the bones, and death. Every drug has been applied to arrest its progress; even the bite of a rattlesnake has been tried. In certain stages it is held to be highly contagious, and those suffering from it usually separate from their families. The leper-class in the Brazil is dangerous, actively and passively. We may remember that in France it was known as "ladre." It is evident that in this Province, as in São Paulo, leazar houses are greatly required.

If Minas has less leprosy, she is more afflicted with *goître* than her neighbour. The disease in Portugal is called "*Bócio*" and "*Papeira*," in the Brazil "*Papos*," † and the patient "*Papudo*." Pliny's assertion (ii. 37) "*Guttur homini tantum et subus intumescit, aquarum quæ petantur plerumque vitio*," does not hold good here. Caldclough (ii., 258) saw goitered goats at Villa Rica. Mr. Walsh (ii., 63) declares that it attacks not only men but also cattle, and that cows are often affected by it. I have owned a dog with an incipient *goître*, and have heard of its appearing in poultry. The people, as usual, attribute it to the water; for instance, the rivers *Jacaré* and *do Macúco* are supposed to cause it by the "agglutination of vegetable matter." Castelnau observes that this morbid enlargement of the thyroid gland is

* In A.D. 1101, Matilda, wife of Henry I., founded the Lazar-house, now St. Giles. In the thirteenth century, France contained, according to Dr. Sprengel, *deux mille* leproseries. Possibly this European leprosy

would now be called by another name. Upon the subject of the dread malady in São Paulo, I shall have more to say when treating of that Province.

† Literally crops or maws.

common in "Itacolumite" countries; but that it does not, as in Europe, extend to great altitudes. It can hardly be explained by confined air, by deficiency of atmospheric pressure,* or by carrying loads on the head. It is believed to be hereditary. The Indians suffered much from it, and throughout the Mineiro highlands it is so prevalent, that no girl, they jocosely say, can be married if she has not her "papos." It begins early in both sexes; children in their teens have the rudiments of two or three protuberances which, in time, will become like dented air-cushions fastened round their necks. It is never arrested by surgical operations, and the only popular cure is salt, especially in the form of sea-baths, which they declare absorb the swelling. On the Rio das Velhas it is almost general; yet curious to say, on the Upper São Francisco, after the junction of the two streams, it becomes remarkably rare. Saline ground is wanting in the former, abundant in the latter valley, which seems to favour the vulgar idea. In the Brazil I have never found cretinism to accompany goitre, so far verifying M. Koeberle, who looks upon the two complaints as distinct morbid conditions. Mr. Walsh, however, mentions one case.†

Fecundity in this Empire is the norma of animal as of vegetable nature. Were not colonisation a present necessity, the human race would soon populate, with a comparatively homogeneous people, the vast regions that await inhabitants. The Province of São Paulo is supposed to double her numbers in thirty years without the assistance of immigrants.‡ Girls marry as did our

* I can hardly assert this positively: there are some arguments in favour of defective atmospheric pressure being one of the causes.

† Another disease which deserves mention is the virulent form of psora called Sarnas. When ill-treated, and when driven in, the consequences are always dangerous,

and often fatal. It is ever difficult to cure, and it cannot be eradicated from the system without much more skill and perseverance than what is now the rule. In many parts of the Brazil it is as common as on the Congo River, where the Portuguese assert no stranger can long escape it.

‡ Sr. Candido Mendez de Almeida gives the total population in the Brazil for 1863 as 11,030,000 souls, and Minas Geraes, 1,500,000. The Senador Pompeo, upon this subject the highest authority in the Brazil, gives the following estimate of her population in 1866:—

	Free.	Slaves.	Savages.
The Court Municipality	320,000	100,000	
Amazonas	69,000	1,000	140,000
Pará	290,000	30,000	
Maranhão	320,000	65,000	
Piauhý	210,000	22,000	5,000

grandmothers, at fourteen, and bear children till late in life. Unions between December of seventy and May of fifteen are common,* and the result is a wife-coeval with her grandchildren by marriage. Connections of blood relations, such as uncle and niece, are not rare; and, to the shame of the Catholic Church, it still grants dispensations to commit incest for a consideration. The results are not so terrible as in England, and especially in New England; yet throughout the Brazil the finest population is always found in places which foreigners have most frequented.

The Mineira in her nursery song assigns a patriotic cause to her desire for issue—

“Acalánte te ô menino,
Dorme já para crescer,
Que O Brazil precisa filhos—
Independencia ou morrer.†”

Like her sister in New England and Ireland, she shows more philoprogenitiveness than amativeness; and her diet is spare like that of the Scotch woman: † these, on the rule that rich aristocracies decrease while poor communities multiply, may be part causes of her exceptional fertility. I have heard of apparently

	Free.	Slaves.	Savages.
Ceará	525,000	25,000	
Rio Grande de Norte	210,000	20,000	
Parahyba	250,000	30,000	
Pernambuco	1,000,000	250,000	
Alagôas	250,000	50,000	
Sergipe	220,000	55,000	
Bahia	1,100,000	300,000	8,000
Espirito Santo	50,000	15,000	
Rio de Janeiro	750,000	300,000	
São Paulo	750,000	85,000	8,000
Paraná	80,000	10,000	
Santa Catharina	125,000	15,000	
S. Pedro	340,000	80,000	
Minas	1,150,000	300,000	
Goyaz	135,000	15,000	15,000
Mato Grosso	40,000	6,000	24,000
Totals	8,134,000	1,784,000	200,000
Grand total	10,118,000		

* The husband will then address his wife as “Minha filha,” something very terrible to Asiatic ears. The wife rarely calls her husband “husband:” she mostly prefers a paraphrase, as *Compadre*, or *primo* (cousin).

† Hush, my baby, lullaby,
Take thy sleep and quickly grow;
Needeth children the Brazil—
Independence or we die.

‡ In Scotland 100 children are born per annum of 348 women to 386 in England.

well-authenticated cases of superfetation.* The Mineira is an excellent mother, when superstition does not smother nature: but an "anjinho" or "innocente," a very young child, dies unregretted, because its future happiness is certain. The young are what we call "petted," or enfans terribles; they are young gentlemen and ladies after the third year: en revanche through life, they preserve the greatest affection and respect for the mother, kissing her hand and asking her blessing every morning and night. In no country do progenitors sacrifice themselves so much to their progeny; I knew a father who studied algebra in order to write an algebraic letter to his son. And nowhere are children more grateful: a lesson to that hateful being the "stern parent of Europe." Such a custom as "administering the innocents" is absolutely unknown. As in all new countries, the "infantry" grow up almost wild, and infinitely prefer the fazenda to the town; so in the United States, the traveller first remarks the tameness of the horses and the wildness of the children.†

The dress of the Upper Ten is purely European. The Mineiro has cast aside the picturesque old Iberian costume, which was worn during the first quarter of the present century, the Spanish sombrero, plumed and broad-flapped, the short-mantled and gold-trimmed coat, the doublet or jacket of flowered cotton, and the large puffed breeches, with pink silk lining appearing through the slashes. The silvered horse-trappings are becoming obsolete, and though the spurs with crown-piece rowels are retained, they are mostly made in England. Morning-dress is unknown throughout the prim-mannered Empire:—Brazilians will wear black clothes in the morning. A gentlemen never appears in the street, even at dawn, without chimney-pot tile (chapéo alto), black coat, waistcoat, and overalls black or white, cane or umbrella. Travellers must follow the semi-barbarous custom, and dress in broadcloth behind a bush before they enter a house. On the road the Mineiro will allow himself a Chile or Guayaquil (Panama)

* Not, however, that mentioned by Mr. Walsh, a hoax perpetrated upon him by my friend the Visconde de B——.

† It was the same with the Tupys. Amongst the Sea Dyaks, "He is very wicked" is the greatest praise to a child. This also is the case amongst the so-called Kafir (Caffre) races: the more mis-

chievous and boisterous the boy, the more proud is the father. Prof. Dabney (Life of Jackson, p. 15) alludes to the "relaxation of parental restraints which usually prevails in new countries;"—he might add, amongst the uncivilised as opposed to semi-civilised races.

hat, and huge loose-topped boots, generally of half-tanned unblacked leather, which contain his slippers and other comforts. The linen, or rather cotton; is scrupulously clean,* with a propensity to starching and to dyeing sky-blue with indigo. The poor imitate the wealthy; but their garments are often home-woven and home-cut. The tailor "in partibus" charges about double what Stultz ever did.

The only relic of the national costume retained by the Mineira is seen only when she goes to mass. It is a mantilla of rich black silk, satin, or broadcloth, trimmed with stout home-made lace falling over the eyes; though lately patronised by H. H. the Pope, it is not held strictly correct in cities and towns. I have alluded to the frequency of bathing.† The sex delights in flowers and perfumes: in the wildest parts pots of basil, pinks, geranium, lavender, and sweet herbs are placed on troughs raised above the reach of pigs and poultry. They have an amiable predilection for diamonds and rich toilettes: a glance at a French milliner's bill in the Brazil shows the necessity of repressing the taste. At public balls the sumptuary law runs, "Ladies are politely requested to appear attired with the utmost simplicity," and sometimes even the use of gloves is deprecated.

SECTION III.

THE MORAL MAN.

Perhaps the best general view of this extensive subject will be given by the following official list of crimes which have come before juries of the Province during a period of ten years.‡

* In this point diametrically opposed to the Welsh, who are described as "scrupulously clean in everything but their persons."

† As a rule the Brazilian Indian in the wild state bathes every day at dawn, and afterwards whenever he wishes to cool himself.

‡ Many of these offences, it must be remembered, are committed by the servile population, which, under the excitement of the expected emancipation, is peculiarly prone to acts of violence. "The English are soon coming to set us free," I have heard said by negroes chattering at the fountain.

"On trouve chez les nègres beaucoup de dispositions et de persévérance pour s'instruire dans les arts et dans les sciences: ils ont même produit des personnages distingués." So says Prince Max. (i. 113—114), quoting Blumenbach, *Beitrag zur Naturgeschichte* (vol. i., p. 94). I must warn the reader against this vague assertion, which offers no manner of proof. In the days when those authors wrote, the mulatto was confounded with the negro; moreover, the noble African races, namely, those mixed with Semitic blood, and leavened for a course of ages by connections with Southern Europe, were not distinguished from the pure African.

Table showing the Crimes committed in the Province of Minas Geraes, from 1855 to 1864.

PUBLIC CRIMES.

Years in which these crimes were committed	Against the free enjoyment and exercise of political rights.	Sedition.	Insurrection.	Resistance.	Flight and letting prisoners escape.	Disobedience.	Prevarication.	Bribery.	Excess or abuse of authority.	Omission or negligence in duty.	Irregularity of conduct.	Falseness.	Perjury.	Pecculation.	False coining.	Destruction or injury to public goods.	Sum Total.
1855	...	...	...	3	12	1	...	...	1	3	...	1	2	1	1	...	25
1856	...	...	...	6	...	10	...	...	...	...	...	3	3	...	1	1	24
1857	...	...	...	6	4	...	...	1	...	2	...	1	4	1	...	1	20
1858	...	...	...	6	13	2	1	2	...	3	6	1	2	2	...	2	40
1859	...	...	...	6	14	1	1	...	...	1	...	3	3	...	...	1	30
1860	...	...	...	5	8	...	...	...	1	1	...	3	...	1	...	...	19
1861	3	...	...	2	4	...	...	...	...	...	...	3	1	1	...	...	14
1862	...	...	...	4	9	...	...	...	3	1	...	3	3	1	...	...	24
1863	2	1	...	8	11	...	1	...	4	1	1	3	3	2	...	...	37
1864	1	1	1	2	14	...	1	1	1	2	2	2	1	...	1	1	31
Sum Total	6	2	1	48	89	14	4	4	1	14	17	2	24	22	7	3	264

PRIVATE CRIMES.

Years in which these crimes were committed.	Against private liberty.	Homicide.	Attempt to murder.	Infanticide.	Wounds and physical offences.	Threats	Breaking into private houses.	Rape.	Calumny and injury.	Polygamy.	Adultery.	Petty larceny.	Bankruptcy and other crimes against property.	Bodily injury.	Theft with violence.	Sum Total.	
1855	...	80	15	...	139	16	1	1	1	...	...	14	5	9	14	296
1856	3	101	24	...	163	14	4	1	1	2	1	9	6	6	12	347	
1857	6	108	36	...	163	26	1	2	1	5	1	8	3	14	9	383	
1858	8	164	45	...	240	28	2	...	14	2	...	43	5	9	18	578	
1859	5	163	44	1	266	37	3	5	2	16	...	24	14	15	35	630	
1860	4	117	42	1	225	24	3	5	3	9	...	1	28	9	10	22	503
1861	1	80	36	...	85	8	...	2	2	2	...	2	7	4	5	22	256
1862	4	119	58	...	153	4	...	2	1	2	...	8	8	6	15	380	
1863	2	135	40	1	150	10	1	6	...	1	1	...	12	1	4	12	376
1864	3	119	46	...	170	3	...	1	1	7	...	8	4	4	17	383	
Sum Total	36	1186	386	3	1754	170	15	25	12	59	5	3	161	59	82	176	4132

POLITICAL CRIMES.

Years in which these crimes were committed.	Offences against religious morals and good manners.	Fabric and use of instruments to rob.	Illicit meetings.	Vagrancy.	Forbidden arms.	Abuse of the press.	Mutiny	Sum Total.
1855	2	...	43	...	...	45
1856	2	2	45	...	1	50
1857	4	3	35	...	4	46
1858	3	1	3	...	41	1	1	50
1859	2	...	52	...	...	54
1860	44	1	...	45
1861	2	...	...	2
1862	2	...	4	...	...	6
1863	1	...	7	...	...	8
1864	3	...	...	3
Total	3	1	16	5	276	2	6	309

General total.—1855, 366 ; 1856, 421 ; 1857, 449 ; 1858, 668 ; 1859, 714 ; 1860, 567 ; 1861, 272 ; 1862, 410 ; 1863, 421 ; 1864, 417 ; sum total, 4705.

Secretary of Police of Minas,
August 1, 1866.

ANTONIO XAVIER DA SILVA, Jun.,
Acting Secretary.

The document speaks for itself. I will only remark that the crimes against property are 204, against person 3299, out of 4705; and that to three cases of petty larceny there are 1186 murders. Yet Brazilian law protects, unlike ours, life and limb much more than goods and chattels. Here to raise a stick, even to use insulting language, is actionable, and the offence is severely punished. Foreigners say that it is better to kill a man in the Brazil than to wound him. It is criminal to shoot a burglar in the act of plundering your house. In England the law is grotesquely and scandalously in the other extreme, and the necessary tendency is to develop and foster the national vice, ruffianism and brutality.* The wife-beater and the street-malefactor, after the nearest possible approach to the homicide of an unoffending person, may rest assured that nowhere in the wide world they will be treated so kindly and considerately. But though they

* It is not long since the traveller was warned to beware of jealousy in Italy, ridicule in France, and the "lower orders" in

England. France in 1866 had only one-sixth of the criminal trials by jury found necessary in England.

may flatten noses and break ribs for 5*l.* or a week of jail, they must not touch watch or breast-pin, otherwise the Majesty of the law will don its most terrible frown.

How is it, then, that in Minas—I may say in the Brazil generally—there is so little safety for life, which is so sedulously protected?

Amongst the rich, murders come from three causes, land, political questions, and “affairs of the heart”—a member only secondarily concerned in the matter—especially when the honour of the family is concerned, and when only a shot or a stab can set matters right. The poor kill one another after quarrels about land, gambling losses, love, and liquor: the *cachaçada* or drunken fray often ends in bloodshed. As a rule, all males are armed: revolvers and bowie-knives when in cities are worn concealed; in the interior no one walks or rides abroad without a gun or long pistol (*garrocha*), and the knife never quits his side. Bloodshed is looked upon with little horror; practically there is not that regard and respect for human life, which distinguish the older social state of Europe. The affectionate diminutive “*facadinha*” means a knife-thrust, and “*uma mortezinha*” (lit. “a little death”) is a murder, generally treacherous. The moral impossibility of carrying out capital punishments—of blotting out the criminal from the catalogue of living men—the facility of breaking jail, and the scanty dread of hard labour with the slave gang, are inducements to gratify revenge. Lastly, most of these criminals are uneducated; and if the prison is to be closed, the school, and in this phase of civilisation, the parish church, must be opened and kept open. Let us ever remember with M. Quetelet (*Sur l’Homme*, ii. 325) “*c’est la société qui prépare le crime, le coupable n’est que l’instrument qui l’exécute.*” “There goes my unfortunate self,” exclaimed the good Fénelon, when he saw a thief dragged to the gallows.

Some of the murders are scandalous. We read, for instance, in the city of Lavras that A. B. having a quarrel with C. D., wounded him five times, assassinated the municipal guard E. F., killed G. H., and severely injured I. K., who accompanied the police magistrate to the spot. In 1866 an M.D., married to the grand-daughter of the Baron of R. V., an inoffensive man, well spoken of, murdered him in the public square of the *Freguezia* de S. Gonçalo da Campanha. In the same year a Dr. A. B.,

riding with three friends in the vicinity of Philadelphia, was shot dead from an ambuscade by C. B., who at once mounted his horse and escaped. When I approached the Paulo Affonso Rapids my men were discussing a murder which had taken place some six weeks before. In this case there was the usual negro, and more than one woman. The Senhora Isidora Maria da Conceição preferred the Senhor 'Ferino (Zepherino) da Cruz to her lawful spouse, the Senhor José Telles de Menezes, and the pair agreed to put him out of the way. "'Ferino" enlisted the sympathies and assistance of his own wife, the Senhora Marianna Telles de Barros, by telling her that the man to be killed had spoken against her. "He must be slain!" exclaimed the duped lady. The Brazilian Clytemnestra removed her husband's weapons, the party knived their victim with many wounds, cut off his tongue and ears, scalped him as Mohawks would have done, mutilated him, and tying heavy stones to the arms, threw the body into the Rio de São Francisco. It was found a fortnight afterwards apparently fresh, they said, evidently with a turn towards a minor miracle. I asked the cause of the mutilation: the reply was "para judearem," Jewishness. Here the Jewry still serves as a synonym for all devilry.* The criminals are confined at Gere-moába in the Province of Bahia, some twenty-five leagues from the Porto das Piranhas; it is a country jail, peculiarly fitted for effraction; moreover, any amount of perjury is at their disposal. A jury will be packed, and transit in rem judicatam will probably settle the matter.

On the other hand the ratio of crime to population is trifling, and, as has been shown, the law-loving, or rather the kindly though fiery character of the Mineiro is shown by the state of the police. With such and so small a repressive force, most European countries would be uninhabitable. In 1866 England, with a population of 20,000,000, yielded 19,188 criminal trials by July, and 27,190 apprehensions for grave indictable offences. Nowhere is travelling safer for foreigners who do not engage in politics, amours, or law suits. Theft is unknown where strangers have not settled: when I first descended the Ribeira de Iguape in

* So a man will often say "Judéo-nos," he has jewed us. Jew is still used here in a sense which is utterly obsolete amongst the educated classes in Europe. Had I a

choice of race, there is none to which I would belong more willingly than the Jewish—of course the white family.

1866 my boxes were left open. In 1867, after a little Anglo-American immigration, the people had become adepts in the art of picking and stealing, and every precaution had to be taken, even against free men. Amongst the Tupy tribes larceny was unknown, and in the interior of Minas it is still confined to slaves. Yves D'Evreux informs us that "Mondaron," or thief, was the greatest insult addressed to an Indian, and that the wild women preferred being called Patakere (meretrix) than Menondere.

The prevalence of intoxication surprised me. St. Hilaire testifies to the fact that in his time a drunken man was hardly ever seen. Gardner declared that, landing at Liverpool, he met in a few days more men in liquor than he had found amongst the Brazilians, black or white, during five years' travel. Prince Max. complains of the vice on several occasions,* but he was travelling amongst the wretched settlers of the Maremma, on the eastern coast.

My experience is as follows. In the Atlantic cities sobriety is the rule, especially amongst the educated,† and the climate hardly permits the abuse of stimulants to endure long. But in the interior the vegetable diet, the fatal facility of obtaining cheap and efficient liquor, the want of excitement, and the example of exiles, who find in the bottle their best friend, has made the lower orders, like those ruled by the Maine Liquor Law, a race of hard drinkers.

Old people have told me that in their youth the remark which capped the description of a reprobate, a "perdido," was, "and, it is said, he drinks." The dipsomania of Northern races afforded many a pleasantry now unfortunately obsolete. "Um Inglez bebado"—a drunken Englishman, "what a pleonasm! what tautology!" they exclaimed. "Tem sua baeta Inglez," he wears his English baize (or "frieze trusty"), was equivalent to "falla Inglez,"—he speaks English, in Portuguese Africa meaning

* Vol. ii. p. 364. "Le séjour de Villados-Ilheos ne convenait pas aux Brésiliens que j'avais pris pour m'accompagner dans les forêts; ils étaient tous grands buveurs d'eau de vie, et avaient occasionné plusieurs scènes désagréables." Vol. iii. 148. "La fainéantise et un penchant immodéré pour les boissons fortes sont les traits distinctifs du caractère de ces hommes" (the Vadio

class). Also "Nous avons été souvent incommodés par des ivrognes, et nous avons eu quelquefois beaucoup de peine à nous débarrasser de ces hommes, qui nous gênaient singulièrement."

† It is only in this sense that I can understand Castelnau (i. 132), "L'ivrognerie est presque inconnu au Brésil."

“he’s drunk.” The Mineiro can no longer boast of that pleasant moral superiority. It is difficult to engage attendants, freemen as well as slaves, who do not habitually exceed, and if the “boss” show a bad example, the indulgence will pass all bounds. The “Tropeiro” and the boatman will begin the day with a dram, “para espantar O Diabo”—to fright the Fiend.* There is a second, “mata bicho”—kill-worm,† which, as the old pleasantry says, dieth not. After breaking fast at 7 or 8 A.M., a third, with sober men, follows dinner, from noon to 2 P.M., and often the night is spent by friends over a guitar (viola) and a garraão (demijohn) of Cachaça. In a small village, after a fête-day, I have seen five or six men strewed on the road, and I have been repeatedly warned never to engage a crew for shooting rapids on the morning after a merry-making. Like Orientals, few men here drink temperately; those who drink drink hard, and those who avoid the vice are total abstainers—which tells its own tale. The consumption of ardent spirits exceeds, I believe, that of Scotland. Brazilians who are scandalised by the quantities that disappear, declare that the raw rum is used in baths. The Government would do well to publish the statistics of the subject, and these could easily be collected, as most of the distilleries are taxed, and Cachaça pays an octroi on entering the cities and towns. Anthropologists will remember the immense quantities of whiskey drunk in the United States, and it is curious to observe that the aborigines of the Brazil were extraordinarily addicted to intoxication. De Lery, the quaint old chaplain of Villegagnon, says (*Voyage*, 130—132): “Qu’il ne soit permis de dire ariere Alemans, Flamans, Lansquenets, Suisses et tous qui faites carhons et profession de boire, par de çà; car tout ainsi que vous-mêmes, après avoir entendu comme nos

* H. S. M. is as much invoked as the “Diawl” in Wales.

† The expression “Matar O bicho,” to kill the worm, is popular in every Portuguese colony. Its origin is thus explained. In the early part of the eighteenth century appeared a disease in Spain which made many victims. The physicians called it “mysterious,” till a certain Dr. Gustavo Garcia, an old doctor who had retired from practice, proceeded to the autopsy of the dead, and found in the intestines a small worm still alive. He treated it with alcohol, which at once destroyed it; the

medicos took the hint, and every patient was at once dosed with a petit verre. From Madrid the habit and the expression passed to Portugal, and thence over the Portuguese world. Sr. Mendes de Faria, from whom these lines are borrowed, remarks, “Uns matam o bicho de manhã, outros ao jantar, muitos à noite, e a maior parte, em quanto lhes tinir um real na algibeira.” “Some kill the worm in the morning, others at dinner time, many at night, and the majority as long as a coin rattles in their pockets.”

Américains s'en acquittent, confesserez que vous n'y entendez rien au prix d'eux, aussi faut-il que vous leur cédiez en cet endroit."

The Mineiro, like the Paulista, is a religious man but a lax Catholic. Catholicism is here far removed from its legitimate centre, and has undergone some notable changes. At the same time he has, like the Paulista, a certain horror of any one non-Catholic. He is rather superstitious than fanatic, but all know how easily the former may pass into the latter phase. The persecuting element is not strong, although I have read the speech of a Provincial Deputy, who proposed to put to death a priest who became a convert or a pervert to "Protestantism." Hardly any one in these days builds a church—a wholesome sign of the times.* Many of the highly educated, if not the vulgar, advocate the marriage of the clergy, and the Regent Feijó wrote upon this subject a pamphlet, which was translated by an American missionary, Mr. Kidder. The parishioners have little objection to a Vigario who takes a wife and makes an honest man of himself. The climate is not favourable to chastity; the race, especially where the blood is mixed, is of inflammable material, and the sayings and doings of slaves do not comport with early modesty. I need hardly say that the celibacy of the clergy is merely a matter of discipline, preserved in this day because it is, or is supposed to be, agreeable to the spirit of Christianity, and because it certainly is highly advantageous to the Church. On the other hand the superior dignity of virginity or sterility, either enforced or voluntary, is an idea revolting to reason and common sense, especially in a young country, where polygamy is morally justifiable, the evils being more than counterbalanced by the benefits.

In Minas and in the Brazil generally, where the "sabbath" is kept more strictly than in France and Southern Europe, we no

* I have already alluded more than once to this most important subject: let me here quote my lamented friend, Mr. H. T. Buckle (*History of Civilisation*, 2nd edit. ii. 174), with whose enlightened views I thoroughly agree.

"It is certain that in the middle ages there were, relatively to the population, more churches than there are now, the spiritual classes were far more numerous, the proselytizing spirit far more eager, and there was a much stronger determination

to prevent purely scientific inferences from encroaching on ethical ones."

To this I would add, that there are countries where still lingers the gross mediæval superstition, namely, that after murdering a man, or beggaring a family, the most graceful thing to do is to expend part of the spoils in building a church and in feeing a priest. It is still one of the besetting "idols"—theological assumptions and metaphysical hypotheses.

longer find that abuse of fêtes, holy days, and saints' days, which in parts of the Old World still render useless half the month. Nor is the unmeaning practice of fasting carried to excess. The confessional is not abused except by the professional devote, and we seldom hear of a man who has recourse to his priest in all matters, trivial or important, secular or spiritual.* Briefly the people is ripe for religious reforms. Of these the principal would be an "irréligieux édit * * * qui autorise tous les cultes," all faiths should be permitted to build for their worship, temples, not houses. Civil marriages are allowed by law, a great advance beyond certain of the "nebulous" Hispano-Argentines, who, during the last few months, rose in riot against the innovation. But mixed marriages between Brazilians and foreigners must be relieved of certain drawbacks, such as compelling the issue to be brought up in the belief of Rome.† When the Church yields, the State cannot remain behind. Some day every immigrant citizen will be admitted to the highest posts under the government of which he volunteers to become a subject; now he can be a Senator but not a Deputy, that is to say, a colonel but not a captain. The Brazil will do well to consider the example of the United States, which have risen to their present state of prosperity by thorough and unlimited toleration: not because they are near Europe or enjoy a fine climate, or own a wealthy country, or can grant land by the square mile. All these advantages, to a greater extent, may, I believe, be found in the Empire.

* I shall reserve for another volume considerations on the present state of the secular clergy in the Brazil. As a rule they are grossly and unworthily abused by foreign, especially by English Catholics, who, as a rule, are Ultramontanes. My personal experience has taught me that they are far better than reading and hearsay entitled me to expect; they are sufficiently elevated in point of education above their flocks; if not so "enlightened," they are far less bigoted than the stranger ecclesiastics now swarming to the Brazil; and all, even their enemies, bear witness to their obligingness and hospitality. I am glad to find my opinion supported by the testimony of so good an observer as M. Liais (*L'Espace Céleste*, p. 220). "Il faut, au reste, reconnaître que dans ce pays le clergé Catholique a des opinions plus libérales et moins ultramontaines qu'en France. On l'a, en

général, calomnié. J'ai eu occasion, à Olinda surtout, de voir souvent des prêtres très recommandables sous tous les rapports."

† It will here occur to many that without an influential National Church an Empire can hardly be expected to last, and that complete toleration belongs to a limited Monarchy or a Republic. This is, I believe, true of the aristocratic form of Imperialism: in the democratic form, where the republic conceals itself under the mask of sovereignty, it appears a solecism, an anachronism. Before 1836, the Constitution of North Carolina declared that "no person who shall deny the being of God, or the truth of the Protestant religion (what may that be?), shall be capable of holding any office or place of trust or profit." The Brazil, therefore, is still behind what North Carolina was a generation ago.

But they can never be thrown open to the world until complete equality in civil as in religious matters shall level all obstacles in the path of progress. There must, I believe, be some modification in the Brazilian Constitution before the nation can cease to be what the witty Frenchman termed it, "un peuple prospectus."

The Mineira lives in the semi-seclusion system which crossed the Atlantic from Iberia; it was there increased by the dominion of El Islam, which, on the other hand, borrowed some laxity from Christian example. "Femme file et ne commande pas." In none but the most civilised families do the mistress and daughters of the house sit down to the table with the stranger; amongst the less educated the *déshabille* is too pronounced to admit of reception without an almost total toilette. This state of things reminded me much of the Syrian Christians, who will not change their old system for the liberty, or, as they call it, the license of Europe. Men protect their women in two ways. Either, as Orientals, they keep them out of temptation; or, as we do, they expose them freely, but with the gaslight of publicity turned full upon them. Again in Europe there are minor differences of treatment. In France and Italy, in fact among the Latin races generally, the girl must not leave her mother's side; she may hardly walk out with her brother, who is held to be inefficient as a chaperon; but, once a wife, the surveillance is ended.* In England the maternal protection is unduly lax, and "flirtations" before marriage are not looked upon as offensive to society; thus those who enter the "holy state" are anything but virginal in mind. In Canada the freedom is carried to excess, quite as much perhaps as in the United States, but in the latter women are accompanied by the revolver and the bowie-knife.

As in tropical countries generally, the "awkward age" of long limbs and large extremities which immediately precedes the *beauté du diable* is unknown in Minas. The girls are never prettier than between thirteen and sixteen, when they are little women. Similarly there is no hobbledehoyhood and that hideous breaking of the voice which is apparently peculiar to the temperates.

I believe the state of the family to be in Minas, as in the Brazil

* I would not be understood here to repeat the absurd and disgraceful calumnies heaped upon French society in the beginning of the present century.

generally, exceptionally pure; and that, in this respect, many foreigners do the people a foul wrong. It would be amusing, if it did not provoke indignation, to hear a stranger, after a few months' residence, who can hardly speak a connected sentence of Portuguese, gravely supplement his want of experience by power of fancy, and quote the injurious saying which seems to have run from pole to pole, "Birds without song, flowers without perfume, men without honour, and women without honesty." Cities and large towns are mostly on a par as regards morality all the world over; a nation must be judged by its village and country life. Here a breach of virtue is almost impossible, opportunity is almost wholly wanting, and "chumbo na cabeça," or "faca no coração"* would certainly be the doom of the so-called "seducer." As in the United States and not in Iberia, the penalty in the Brazil falls upon the wrong person, the lover not the wife. This accords with the feeling in England, and, indeed, in most northern nations. Our Court of Divorce, if settling the case of Potiphar versus Potiphar and Joseph, would not permit the correspondent to tell a tithe of the truth; he would, if unwise enough to attempt the defence of fact, be called an unmanly contemptible fellow by the judge, and he would go forth the execrated of all England.

I may quote respecting the Mineira what the Countess Paula von Kollonitz † has said of the Mexican spouse. "The bulwark of relations by which a young wife is surrounded acts to a great extent as a protection to her: but, independently of that, I found them nearly always retiring and rigid, even to prudishness, when strangers were inclined to be presumptuous. Their marriages are really domestic and happy, married people are always seen together, and the husband lavishes gifts on his wife, which is considered a special mark of attachment." I may add that the exemplary conduct of the Brazilian women who have married English husbands speaks loudly in praise of the sex generally.

Dutch Bernard de Mandeville, whose plans for diminishing immorality—in the limited sense of the term—were so far before his age that they exposed him to a Middlesex Grand Jury in

* "Lead through the head: a knife in the heart." "I have resided at small towns in the interior, where the habits, and the general standard of morality of the inhabitants, were as pure as they are in

similar places in England." *The Naturalist on the Amazons* (vol. i. p. 43).

† *The Court of Mexico*. Messrs. Saunders, Otley & Co.

1723, asserted, to the scandal of all "proper persons," that the *Hetæra* class is numerous or few in exact ratio to the purity or depravity of the family. The loosest places in Europe are those where the *Agapemone* is poorly kept up and frequented only by strangers.* The extreme prevalence of professional prostitution in the country towns of the Brazil, as described by travellers before 1820, and which gave the proverb "*mulher e cachaça em tudo lugar se acha*," has now disappeared. Yet in the "chapelries," which are frequented on Sundays and festivals by the "squirearchy," there will be three or four daughters of Jerusalem, each making 150*l.* per annum, here equivalent to 500*l.* in England; the money comes from the planters' sons, who in Europe would apply to the wise woman or the cartomantiste—which is worse. And, as Cato knew, there is a great deal of difference between public and private vice.

Poetical justice in the matter of the Hebrew is dealt out to the Brazilian by Europe, which loves to call him the "Jew of South America," and the same has been said of the New Englander. Both races are essentially "smart," and "smartness," be it observed, is rapidly finding its way eastward; † both produce first-rate men of business, and many have made colossal fortunes in a few years. The "*pobre rico*," or poor rich man, who lives like a beggar and lends his hoards at 15—24 per cent. is not unknown; as a rule, however, money is freely spent, and there is little of the grasping, tenacious covetousness vulgarly attributed here to the Portuguese, amongst us to the Hebrew. The highest homage is paid to commerce; half the titled men in the land have been or are in trade, directly or indirectly; a planter's house is not finished without a shop on the ground-floor, and I have not yet met a *Fazendeiro* who would not sell his estate, in whole or in part, with slaves or without slaves.

St. Hilaire, who had become almost a *Mineiro*, found a want

* At Hyderabad, in Sindh, the break up of rigid Moslem rule was followed by a deluge of debauchery. I well remember that the dancing girls, in a pathetic memorial to Sir Charles Napier, declared that the married women were "taking the bread out of their mouths." We at once learn what New York is by reading in the Census of 1865, that the unmarried are 423,121; the professional prostitutes known to the police, 3,000; and the total number

of women who live by prostitution publicly and privately, 25,000. Here we have a polyandry of at least 17 men to 1 woman. One of the most depraved cities which I have seen numbered 200,000 souls, and two small "*Agapemones*."

† An excellent paper might be written upon the effect which Anglo-America is exercising upon the English mind for good and for evil; the former palpably predominating.

of cordiality when he left Minas.* My experience is the reverse of his. The Paulista, though reserved, is more at home with strangers than his cousin; the latter may be described as "acanhádo," which partially answers to our word "shy." There is a painful amount of ceremoniousness, which takes us back to the primitive punctiliousness of Minho e Douro. Both Provinces are equally hospitable, both dislike distance of manner, and both prefer the French manner of address to the English—as the difference was a third of a century ago. But on the road the Paulista pulls off his hat, gives you a hearty good-morning, and willingly answers every question. The Mineiro eyed us hard before touching his tile, often his hand hung suspended between saddle and head, childishly calculating whether the stranger would or would not acknowledge the salute. Sometimes he stared at me surlily and angrily, the women "made faces," and the men returned a sharp answer, which forbade all hope of intercourse. This, however, was my misfortune. The Paraguayan war made the people of the interior consider every foreigner as an agent of government, or travelling for some dark purpose. In one place I became the Chief of Police, a functionary who, as a rule, does not appear till some one is "wanted," and who makes even the innocent take to the bush. On the Rio de São Francisco I found myself President Lopez, and I was never less than a "recruiting officer," a character about as popular as the gauger in old Ayrshire when Robert Burns sang, or as the bailiff in Connemara when governed by Martin of Galway. Moreover with increased numbers of European visitors and settlers the Mineiro has not learned increased respect for foreigners, and no wonder. Familiarity with such men—I hasten to say that there are many notable exceptions—can breed only contempt.

Minas has produced the two parents of the Brazilian Epic, and her sons have distinguished themselves in arts and arms throughout the Empire. The intellectual range of the Mineiro has mostly been confined to the humanities. Modern science cannot be acquired in the Province, mechanics are unknown, but the belles-lettres are open to all. Like the Neo-Latins generally, they easily learn the cognate dialects, and their nimble but somewhat

* In II. i. chapter 2, and elsewhere.

desultory comprehension masters with ease the various introductory branches of mathematics. They have a very decided sotaque or brogue, which at first is not easily understood. The Paulista speaks with his mouth unduly open; his is the Doric, the North-country dialect of the Brazil. The Mineiro closes his lips and eats his words till they fail to catch the strangers' ear; it is Lancashire versus Northumberland. This is doubtless derived from old times, when there was great mixture of Indian blood. St. Hilaire (III. ii. 107, and ii. 263) makes it a characteristic of the Red-skins. "Comme les diverses nations indiennes que j'avais vues, jusqu'alors les Cayapós parlent du gosier et de la bouche fermée." He is confirmed by all travellers, even from the earliest ages. Prince Max. (iii. 166) says of the Camacans or Menians, "Ils coupent brusquement la fin des mots, parlent bas et la bouche à moitié ouverte."

I am unwilling to extend this Chapter by extracting from official sources statistics of educational establishments and lists of scholars. Throughout the Brazil these details look better upon paper than in the flesh. But the subject is never neglected, and the greatest "thinkers" do not consider it unworthy of their highest attention. The school, "the mysterious laboratory where the man and the child in collaboration prepare the future." Moreover it may be safely said that every poor man's son, except in the remotest places, can obtain primary instruction, that the three R's are generally studied, and that those unable to read and write do not number as many as in England and France.* Moreover, the total darkness still found among the lower orders in Europe, the utter absence of all knowledge, is here confined to idiots. Some Provinces, like Paraná, have shown their wisdom

* Throughout England, in 1840, only 58 per cent. could sign their names in the marriage registers. In 1851 the population rose to 62 per cent., and in 1864 to 72 per cent. What can be expected when the State devoted to education the miserable sum of £636,806 per annum, about equal to what is annually wasted upon the Sentimental or West African squadron? In France, roughly speaking, one-third of the population cannot read and write, and there are 55 of the 89 Departments in which the number of the illiterati ranges from 30 to 75 per cent. In 1855 the proportion generally was 39·92 per cent. In 1864

the percentage of men who were alphabetic was 27·88: that of women 41·45, the general average being 34·66. Of the criminal cases tried in Minas during 1865, 5 were well educated, 136 could read, and 187 were alphabetic: total, 328. In 1867, the respective numbers out of 290 were 1, 116, and 173.

I am hardly astonished to see the late Dr. Knox assert, "We have it from the latest travellers, that the ignorance of the so-called (?) Brazilian is something astounding." (Ethnological Inquiries and Observations, *Anthropological Review*, Aug. 1863, p. 252).

in compelling children to attend school; and this, I believe, will soon extend throughout the Empire. At present the fault is rather with the seniors than with the juniors, and parents have not had time to learn what education means.

Books and magazines being still rare and expensive, the newspaper is the staple of literary pabulum throughout Minas. In every shop from early dawn the master or his men may be seen wasting time—foreigners call it—over the periodicals. As the citizen of the United States, so the Brazilian finds amply sufficient enjoyment in a glass of water, here not iced, and a cigar, there a quid or chew, accompanied by a newspaper. I may here venture to suggest a remarkable similarity between the highest forms of European society and that of the Empire and the Western Republic. What man of the world, especially what woman in Paris, ever reads anything but a newspaper or a magazine? Who in London life has time to turn over a page beyond the dailies, weeklies, and monthlies? In how many country-houses are the books upon the tables and on the shelves never touched by any one except the duster?

The reason is that the newspaper is progression, it is the literature of the Future. As Lamartine informed the French Chambers, it will, before the century ends, embrace all human thought, and become the word of man. When journalism shall be infinitely extended by machinery, and submit every day to the public eye every question treated in the fullest manner, the octavo must take the form of the broad sheet. As an old ex-editor I cannot agree with M. Emile de Girardin, “rather one day of office than ten years of journalism”—nor has he worked out his aspirations.

The especial glory of the nineteenth century is that it is rescuing education, learning, enlightenment, from the professionally savans and the Upper Ten Thousand; and sending it abroad as a gospel to mankind. And this will ever distinguish it as an era. Thus, in the beginning of man’s religious life, the Lawgiver of the Hebrews took from the Egyptian priests, who had veiled it in the deepest obscurity of faith and practice, the idea of the One God, which has never been, and which can never be, lost to the human mind.

At the end of the last generation, Gardner found at Ouro Preto a couple of printing offices and four newspapers in small folio :

two of these were ministerial, and the "balance" was opposition; both were wholly political. Now increased communication with the metropolis has reduced the typographies to one, the "Typographia do Minas Geraes;"* the periodicals to two; this is also an evidence of subsiding popular excitement. The "Constitucional" is Conservative; it appears once a week, generally on Sunday, and the editors are Dr. Camillo da Cunha Figueiredo, B.A., and Dr. Benjamin Rodrigues Pereira. The "Diario de Minas," a daily (dating from January 1, 1868), as the name denotes, is edited by a Liberal, D. João Francisco de Paulo Castro, whose party has now long been in power. It is in the usual style of the Brazilian country papers, a single sheet, four columned, twenty-eight inches \times fifteen. There is a leading article, which, like that of the "Eatanswill Gazette," utterly smashes the opposition and the rival. News and correspondence from Europe and from the other Imperial provinces follow the arrival of the post; when the Legislative Assembly is sitting, the Official Part contains the speeches fairly reported, and there is generally something about price current. Being in power, and probably well salaried, it can afford to be calmer and to show more temper than the Conservative. Here, as elsewhere, the tone of the newspaper is the expression of society. Allusions to kicking and horsewhipping, scandalous personalities and violent language, are not unknown to Brazilian journalism; but they are generally reprobated, and will presently meet the fate of the "Satirist;" and even now the talk is rarely taller than what we find in an Irish article upon some subject of ephemeral interest. I have never seen anything to be compared with the "Bombay Times," under Dr. Beust—the "blatant beast" of the "Devil's Brother," or of a certain London magazine which devoted itself during its short life to Oriental subjects.

To a traveller, the most characteristic part of a newspaper is, perhaps, its advertisements. He takes up the "Constitucional," there is a "mudança de nome," some man changing name simply

* In this is a "Corcunda" (High-Tory) named Luiz Maria de Silva Pinto, who, being aged 86 or 87, well remembers the events of 1789. He always speaks with great respect of the Royal clemency to the authors of Brazilian independence. I have remarked Southey's prepossessions in favour of a country which converted the Brazil

into an agricultural and mining establishment. Curious to say, a Brazilian General, J. I. de Abreu Lima (Compendio, Chapter 5, s. 6), speaks contemptuously of her great movement, the Inconfidencia. "Assim se mallogrou o insensato projecto de uma sociedade que mantinha no proprio scio o germen de sua destruição."

to avoid confusion. A. B. C. D. de E. publicly returns general thanks to those who received him hospitably during his last journey—a graceful practice. The relations and friends of the deceased Sr. Fulano de Tal are invited to meet at a solemn requiem mass, celebrated for the repose of his soul, and they will be there: this is headed with a profile sketch of a tomb, bearing the inscription MORTE, overhung by a widow in a poke-bonnet, and with the orphan sitting disconsolate upon the ground. “Fugido” in the largest letters, 50 \$000 in full-length figures, and an anthropoid with a bundle over his shoulder and a switch in his hand, show that a chattel has “made tracks” and is wanted. A cardboard house and two unvegetable-like trees denote a “chá-cara,” a “sitio,” or a town-residence for sale. A piano, a few books, some musical pieces, gloves, boots, lottery-tickets, and stationery are recommended to the public. But the mass of the two pages is filled with patent medicines. Under the titles of “the Lame Walk,” and the “Battle of Life,” salsaparilla of Bristol modestly disguises itself. The quina of Laroche and Blancard’s pills, &c., disdain such pretences. And that Great Britain may be adequately represented, the wonder-working unguento and pildoras (Spanish), or pilulas (Portuguese)—“bother the pills”—of Holloway sprawl barefaced over at least two columns.

Finally, “a Pedido” denotes the communiqué. This correspondence is generally sent unsigned or footed by a fancy or a real name, popularly known as the “testa de ferro:” he bears blame for a consideration. It is the most rabid, if not the only rabid, part of the issue.

CHAPTER XXXIX.

RETURN TO MORRO VELHO.

O mormaço
Causava agudas dôres de Cabeça,
Porque O clima não é do ameno Campo
Do aurifero paiz chamado *Minas*.

José Joaquim Corrêa de Almeida.

WE had given all possible time to the interesting capital, and I was becoming anxious to reach the Rio de São Francisco before the rains set in. Our return to Morro Velho would cover only twelve short leagues, but as the country was new, two days were devoted to it. The exit from Ouro Preto is *viá* the Caminho da Cachoeira, and after passing the church "Sr. Bom Jesus de Matosinhos," we struck the open country. The day was heavy with warm heat,* and a thick blue haze softened the rugged profile of the Itacolumi chain. From that point the range began to fade, and soon the romantic peak looked like a fragment of slanting mist, based upon a long, light, azure cloud.

After two hours we reached the Ranch of José Henriques, a little "povoado," where the road forks to N^a S^a da Nazareth da Cachoeira do Campo, whose name has already occurred. We took the right, or eastern path, and exchanged the Valley of the Rio Doce for that of the Rio das Velhas. "Esbarrancados," huger than usual, pitted the slopes of the divide, and we crossed a narrow natural isthmus between the yawning water-breaches, whose sides were zoned with the usual rainbow tints, whilst a thick shrubbery clothed the soles. Thence the path led down a minor eastern head-water of the "Old Squaws." The water was muddy, with up-stream washings, and ran in a bed of pink sand and clay, dotted with white quartz—a kind of fancy rivulet.

From afar we had sighted the Arraial of S^o Antonio da

* Here called Mormaço.

Casa Branca and its white church, perched upon a hill; but it was two hours before we reached it, and were able to rest for half an hour on the steps of a kind of ranch. Dr. Couto says of this place, that it had flourished before 1801, but that a stone chapel was all that it had to show for its gold. The industries are now agriculture and cattle-breeding. Two instances of longevity were here quoted: one a "lavrador," or small proprietor, still robust, though 100 years old; and the other, ten years senior to him, was Genoveva Pereira Bastos, a sage femme, experienced in the profession—her grand-great-grand and great-great-grandchildren (teternetos) amounted to 120.

After passing the old chapel, we came upon a hilly country, of very mean soil, with a road neither good nor bad. Presently we crossed two contiguous bridges over the true head-waters of the Rio das Velhas. The muddy and deeply-bedded stream, forty feet broad, swirled grimly round a holm, upon which there was a house. It drains the narrow sack formed by the Serra do Capanéma,* by the Serra do Ouro Preto to the south, and to the east by the Serra de São Bartholomeu.

Thence we ascended a long hill, and found clouds drifting heavily from the north-west. The dull heat was now dispersed by raw wind, and rain came on, with a succession of storms which lasted uninterruptedly for thirty-six hours, making the clay greasy as tallow. To the right, and below us, lay the little village of São Vicente, with its two-towered church, some miners' quarters, and the "Casa Grande" of notable size, showing that an English Company has dropped its money there. From the green hills behind it a fine head of water, tumbling white, could be seen through the thick falling drops.

The "Morro de S. Vicente estate" belonged to D. Rosa, the widow of an English mechanic. About 1864, when the Sabará diggings, of which more presently, failed, it was bought by the "East Del Rey Company" at an expense of £36,000. Of this total two sums, £14,000 and £1700, reached the owner. Some of the shares have not been paid up, and the shareholders are not registered.

The dip of the lode is 28°, and the strike is east to west. The

* There is also a village of this name derived from an old Brazilian family. A certain Manoel da Costa Capanéma is found

in the list of the "Inconfidentes:" he was a shoemaker and was pronounced innocent.

vein here and there runs between crystal and quartz, and the latter gives free gold, sometimes partially crystallized, and affording pretty cabinet specimens. The metal is found in "eyes," or rather in shoots running diagonally across the formation. It was first worked on the "open-cut" system, and afterwards by shafting. The stone is stamped and straked, and amalgamation is not used.

Failure is its actual state. Surface works have been heavy, whilst machinery and other underground appliances have been light; and the falling-in of the mine interrupted the pumping. A philanthropic banker of Falmouth, "a great anti-slavery man," determined to astonish and gratify the world by showing the grand results of free black labour. It reminds one of the merchant who, to cure sailors of their superstition, built and lost the ship "Friday." The issue, as might be expected, was pure perte, and the projector, disgusted with his project, soon disposed of his shares. They report that a new company is to be formed in England, and that São Vicente will again be put upon his trial. The little lode may pay if worked safely, that is to say, scientifically and economically.

We rode through rain striking upon our faces, and, as evening was gathering in, we entered by a long descent the "Arraiárito," known as the Rio das Pedras. The single street showed to the east the Rosario Church, and westward the half-built Capella de N^a S^a de Conceição. There are also two smaller chapels; in fact, the churches are almost as numerous and far exceed in cubic contents the dwelling-houses—a pleasant aspect to the ecclesiastic, and an eye-sore to the economist.

We had sent on our Camaráda, Joaquim Borges, to order dinner and beds: luckily. At the door of the pigmy hostelry we caught sight of an elderly citizen in a hammer-claw, or swallow-tail black coat, and we found a party of Southerner immigrants wandering about in search of land. The leader was a Mississippi man, accompanied by two daughters and one son-in-law, two companions from the same State, and a Georgian who was hailing back for the Plate River, despite Indians, Gauchos, and other little difficulties. Mostly these strangers had been accustomed to the flats of Florida and the plains on the bank of the Yazoo River. None of them came from the Midland States, where men raise cereals and cotton—at present, perhaps, the most important and certainly the safest industry in the Brazil.

I had already met several parties of these refugees, and they were not my last experience. The first impression made by our Transatlantic cousins—speaking only of the farmer and little educated class—is peculiar and unpleasant. In them the bristly individuality of the Briton appears to have grown rank. Their ideas of persons and things are rigid as if cast in iron; they are untaught, but ready to teach everything.* Each one thinks purely and solely of self, from the smallest acts and offices of life, such as entering a room or sitting down at meals, to the important matter of buying land or of finding a home. All have eyes steadily fixed upon the main chance; every dodge to “get on” is allowable, provided that it succeeds; and there is no tie, except of blood, to prevent at any moment the party falling to pieces. Amongst themselves there is no geniality; of strangers they are suspicious in the extreme, and they defraud themselves rather than run the risk of being defrauded. Nothing appears to satisfy them; whatever is done for them might have been done a “heap deal better.” As the phrase is, they expect roast pig to run before them, and even then they would grumble because the crittur was not properly fixed for them.

This is not an agreeable account of the pioneers now leading the great Anglo-American movement in the Brazil. Yet we presently find out that these are the men wanted by the Empire to teach practical mechanical knowledge, to create communications, and to leaven her population with rugged northern energy. Bred in a sub-tropical country, seasoned to fevers, and accustomed to employ negroes, they will find the Mediterranean Brazil an improved edition of their old homes. Nothing is to be said against the German in this country, except that he is too fond of farming, as he often did in the United States—an “imperium in imperio;” moreover, his political ideas are apt to be in extremes. The Frenchman, like the Portuguese, comes out empty, as the old saying is, and goes back full. The Englishman, except under Morro Velho discipline, languishes and drinks. As regards bodily labour, he is inferior to the negro. The Scotchman prefers great cities. The Irishman has been hitherto found unmanageable, but under the Anglo-American, who knows so

* One of them, and perhaps the best educated, had heard of Hannibal and the vinegar which split the Alps. I heard him recommend the plan to a Portuguese,

and remember the face of the latter after the trial. In this part of the world vinegar is nearly as dear as wine.

well to drive and manage him, he will be a valuable hand, the muscle and the working power of the country.

It was impossible not to admire the pluck and spirit of these pilgrims. Everything was new and strange to them, they saw what they did not understand, they heard what they could not comprehend—it was quite indifferent to them. They mounted their wretched nags; they wandered about at night; they slept in the woods heedless of Maroons and “tigers,” and they were brought in by the negroes to the planters’ houses, which they often mistook for hotels—in fact, they became a standing marvel to the land. An old man, with a foot and a half in the grave, unaccompanied by a servant, and riding not as the Rechabim rode, a garron, like the steeds of Agincourt, carrying a carpet-bag and a paper of bread, but without even a blanket, actually set out to descend the São Francisco River, cross to the head waters of the Tocantins, and float down to the Amazons. He had been wandering upwards of a year in the Brazil: he had not learned a sentence of Portuguese, and probably he never could. Like the British sailor, he instinctively determined that those who cannot understand good English will be better suited with it broken, “*Me no sabby, me no carey, me—very peculiar me—no drink wine—vinho—me no drink coffee—caffé—me no drink spirits.*” This, aided by the presence of a mighty quid, was intended to enlighten the dullest understanding. His account of meeting in the backwoods with an English-speaking youth had its comic side. The latter pulled up his galloping nag, stared at the solitary figure dressed in a kind of winter greatcoat, collaring him to the head and skirting him to the heels; at the crumpled-up trousers; at the under-drawers, forming a “lucid interval;” and at the unblackened boots, with toes well turned out. Presently he found presence of mind enough to exclaim,—

“Who the h— are you?”

“Guess,” replied the senior, “that *that* don’t concern *yeou*.”

“Where the d— are you going?”

“Wal,” was the rejoinder, “s’pose it don’t much matter to *yeou*.”

“What are you doing, then?”

“‘Cale’late, young man, that you had better move off that way, and I go this way,” suiting the action to the word, and thus they parted.

He offered to accompany me, but I could not bring myself to

say yes. Hunger and thirst, fatigue and vigil, are all endurable, not so the bore.

Garrulus hunc quando consumet cunque ; loquens
Si sapiat, vitet—

This venerable egotist was candid enough to declare that he wanted my company as an interpreter. At every five minutes he would interrupt conversation with "Tell him so and so," or "Ask him this and that." He wanted me to sell his garron, to threaten that it should be turned loose upon the world if it could not fetch its price, to "swap" it for a canoe. *Malè salsus*, I translated him literally, and the expression of the Brazilian countenance, with a painful tendency to a guffaw—a "gargalhada"—which civility forbade, was a study. At the age of sixty-two he seemed to have outlived all sense of gratitude, and to say a good word of any one would, I believe, have killed him.

This Southerner emigration will be, to a certain extent, a natural selection from the United States, even as the population of the latter is a selection of species from Europe. What I mean is, that, whereas the old, the sick, and the feeble in mind and body remain at home ; the young, the brave, and the adventurous, even the malcontent, the criminal, and the malefactor go forth in search of fortune, and find it.

The population of the Brazil, a land whose extent is equal to the United States, and whose natural advantages are far superior, is but little in excess of what the Republic could show in 1820—somewhat over ten millions, including negroes and "Red-skins." About that time began the great squatter movement to the south and west of the Mississippi Valley, which so wonderfully increased European immigration. The new comers found miserable little settlements of straggling "shanties," occupied by a few hundred mongrels, mulattos and mixed breeds, French and Spaniards, with the savage at their doors. Such, for instance, was St. Louis, Mo. In less than half a century it is a vast and wealthy city, with a magnificent future awaiting her. Many of the earliest immigrants returned from the Valley. They were disgusted with the wild life ; they wanted "comforts," and they did not like the vicinity of the tomahawk and the fever. But the strong men remained, and before 1860 they had attracted a population sufficient for an empire.

And thus it will be with the Brazil. Thus only can she expect to play a conspicuous part in the great drama of Human Progress.

On the next day we set out early through the wind and rain. In the afternoon we reached Morro Velho, where the heartiest welcome awaited us. We felt almost spoony enough to quote the spoony lines—

Home ! there is magic in that little word,
It is a mystic circle that surrounds
Pleasures and comforts never known beyond
Its hallowed limits.

CHAPTER XL.

TO SABARÁ.

Kennst du das Land wo die citronem blühn
Im dunkeln Laub die Gold-Orangen glühn ?

Goethe.

AFTER another comfortable fortnight at Morro Velho, I prepared to embark from Sabará. Mr. L'pool had now made his book, and was—*Deo gratias*—*en route* to the coast. With a peculiar cat-like feeling I bade adieu to the Casa Grande, where we had found an English home in the Highlands of the Brazil. My excellent compatriots, however, accompanied me to break the shock of departure. The day was Tuesday, the weather rainy—auspicious both—and I looked forward to being one of the pioneers of a great national movement.

We crossed the Ribeirão, and ascended the northern, or “Old Hill,” by the “Mine Road,” past features now familiar; we ducked heads to the pump-lift, and we glanced at the grist or flouring-mill. M. Müller, who has charge, takes great pride in its superiority to all others in the Province but one. On the left were the villages of “Boa Vista” and “Timbuctoo,” hollow squares, in shape much resembling the “Thembe” of Unyamwezi, and easily convertible into fortified posts, whose low, white walls and heavy tiled roofs would give trouble. The interior is divided into courts. The married have separate houses; the unmarried are divided into gangs of fifteen or twenty, according to the size of the quarters, and the place set off for the girls is called—from the utter absence of conventual discipline, I presume—the “Convent.” These villages are under the surveillance of four black captains, who are on duty by night as well as by day; they must exert themselves hard to ensure anything of cleanliness, and some of the slaves are incorrigibly swinish. All is perfect Inner African within the quarters: the

little fire burns on the hearth at midday, and each door has its tall steps of rugged stone, upon which the inmates sit and smoke and sun themselves.

Turning to the left we struck "Smyth's Road," which rounds the hill in a civilised style. Westward, and distant about two miles, is the Convalescent Station, "Campo Alegre," a rancho for sick blacks, put up by themselves. It has not a vestige of "prairie," but the hilly grounds supply in abundance coffee, vegetables, and firewood. Beyond it we see the Paraopéba road winding over the hills, and in front of us rises the goatee "Morro do Curral d'El-Rei."

The "Curral" is the southernmost apex of a chain which divides the Paraopéba and Upper São Francisco from the course of the Rio das Velhas. Its general direction is north-north-west, and it extends about 3° , or 180 miles; the various names, beginning from the south of the range, are Serra do Salto, Serra da Sella Ginete, and Serra do Espiritu Santo. Beyond the confluence of the Rivers São Francisco and das Velhas it prolongs itself by the Serra do Jenipápo and Serra do Itacolumi, after which it meets the Serra da Mata da Corda coming from the south-west.

The Curral is curiously weathered into cliffs and jags* of the usual volcanic shape, covered with green. It is a Proteus, here looking like a regular pyramid, there like a quoin, and there knob-shaped; it will remain visible for many a mile, and we shall see it even from the river. It appears to me the northern limit of the hilly metalliferous, especially the great pyritic, formations, and beyond it begin the flatter and more cultivable soils, especially the great limestone fields; this, however, will demand further investigation. A ride to the cross, hence two miles northwards, and distant five to six by the road, gives a view ennobled by physical size. The soil is poor, but the immense quantity of rain caught by the cold Peak causes it to be tolerably clothed. Towards the south we see nothing but hills and hollows, suggesting the old simile of a raging sea suddenly turned to earth; here there is nothing level but the horizon. Below us are the Bananal tanks and leats, and a mule-farm, where a patch of water is mistaken for a house. Nearer

* Serrote is the native name of this minor feature: it properly means a handsaw.

is the Taquaril, a deserted gold-mining estate now in process of "rehabilitation." It lies very high up, and I should imagine that the expense of water-supply would be enormous. Just below the cross is "Mocambo,"* a good bit of land. Northward the rises and falls are those of a more tranquil ocean, and the smooth green valley of Curral d'El-Rei shows a little white village of cultivators and cattle-breeders, who number some 359 fires. It is one of the seven churches which can be seen on a clear day; the others are S. Sebastião, Fidalgo, Contagem, Capella Nova, Matosinhos, and Jaguára, to which some add an eighth, S^{ta} Luzia.

It is difficult to make cart roads over this up and down of stiff clay. Even our mules do not find it easy to keep their feet, and the pace is three miles an hour. We round a hill-side, and sight for the first time Sabará, distant over eight miles. This is one of those amene and charming prospects which so often burst upon the Brazilian traveller's eye and form such a relief after the general cachet of uniformity and monotony which Solitude and Nature unrelieved by Art affix to its magnificence. Like most of these places, it is fairest seen from afar, when irregularity adds to its beauty. The large patch of milk-white and red-roofed houses, with quintals, at once "compounds," gardens and orchards, rich with the deep, green verdure of the orange and the myrtle, set off by the lighter banana, lies upon a sloping bank in a kind of "Doab," or "Rincon," where two streams form an angle. Its majestic background is the celebrated Serra da Piedade,† a huge lump, generally capped by thick clouds. To the east this stone-stripped wall bristles with organs or needles, and we could not but observe its resemblance to the metalliferous Serras of S. João and S. José. We were to enjoy its imposing presence for some days; it began by weeping over us a heavy shower, even as the Brazilian aborigines shed bitter tears when they meet a friend.

The land of hard yellow clay is poorly clad; but, as usual, the bottoms are well wooded and would grow cotton. There are

* This word means a stronghold of criminals and maroons. Constancio makes it synonymous with Quilombo. Koster alludes to the Mocambo, 2, xix.

† Curious to say, M. Gerber (Map, 1862)

has placed the Piedade south-west instead of north-east of Morro Velho, and has left a white space on the north of "Cuiabá." M. Burnmeister's map gives it correctly.

extensive *débris* of "Pisarra,"* a name given throughout the Brazil to many different formations, laminated yellow argile, or limonite, decomposed rock, and imperfect "killas." The clothing of the uplands is the usual Cerrado of Barbatimão, wild guava and "folha larga;" and the shorter growth is of tall Sapé (*Saccharum Sapé*) and ferns. Congonha tea abounds, but near the road it has been torn up by the muleteers. The clearings, here called fazendas de fogoês †—stove-farms—show a little sugar of poor quality. Cattle, it is said, suffer from the poisonous plants, chiefly Rubiaceæ, ‡ which appear in the second growth, and which are known as "Herva de Rato." The tropeiras all assert that when forage is scarce many of their animals are killed by them, and they have several simples upon which they rely. I believe, however, that very often the deaths result from change of pasture; moreover, no man has yet been able to show me the "ratsbane."

Turning into a bridle-way on the left of the road we came upon the charcoal-burners who were working for Morro Velho. Here, but not everywhere, they have abandoned the old pit in favour of wood-heaps piled round with "Candeias" (*Lychnophora*, Mart.) about four feet high, banked up with sods and clay. The system is still very rude, and much carbon disappears with the oxygen and hydrogen. We presently fell into the Valley of the Córrego de Rapaunha which drains the southern face of the Cural. The name, "Scrape-hoof," is one of many similar trivialities, as "Farinha Podre," or rotten flour, "Rapa-queijo," scrape-cheese, "Papa-farinha," grub-flour, "Gallinha choca," spent-hen, and "Passa-tres," pass-three, because probably that number of travellers first crossed it. They suggest the nomenclature of the very Far West further north, and the Black Bob's Creek, Dead-man's Flat, Monk's Trunky Creek, and Scabby Flat of romantic Australia. Presently we turned to the right and entered private grounds, the Fazenda de Andre Gomez: Seville oranges were scattered over the earth, and the red-yellow flower of the Guandú pea (*Cajanus indicus*) contrasted well with the coffee in spring

* Pisarrão when in larger masses or flakes. St. Hil. (III. ii. 267) prefers "Pisarão" to "Pisarão." Dr. Couto writes *Pisarra* (p. 38) in the old style: he translates it *talco negro*, and defines it (p. 105) to be hard or soft talcose stuff in leaves or

laminations.

† Or simply fogoês, as "tem bons fogoês para plantar."

‡ St. Hil. III. i. 176, refers to the *Rubia noxia*, and mentions these "Hervas de Rato" in several places.

dress, long lines of stars and spangles, regular as if snow had fallen during the night, disposed along the twigs and set off by the foliage of metallic green. The property belongs to a distinguished Liberal, Monsenhor D. José Augusto Pereira da Silva, Vigario da Vara,* ranking in the clergy next to the Bishop, President of the Municipal Chamber of Sabará, and, in fine, the most influential person in this place.

The dignitary being out visiting, we struck the Praia, or beach of the Rio das Velhas. The swift yellow stream is foul with washing, and unhealthy with mineral water; its bed is deeply encased, and abounding in bad turns and shallows. A chain stretches across the water; and large shorings and scissars near an inclined plane and whim, show where Sr. Dumont's boat discharges the huge tree-trunks required by Morro Velho. Above this "Port Dumont," however, the river is unnavigable. As far up as Raposos, the valley shows spoil-banks and cascalho-heaps which had been rudely washed in the "Canôas" of the "old ones."

Half an hour's ride down the bed placed us at Santo Antonio do Arraial Velho. This was converted from a Capella Curada to a Parish, and annexed to Raposos by D. Frei Antonio de Guadalupe, the well-remembered Bishop of Rio de Janeiro in 1736. It is therefore one of the oldest in the Province, but little remains of its former glories. The stone bridge (Ponte Velha) has clean disappeared, the little mud chapel is hardly white-washed and half ruined, and though there are remnants of walls along the road, a few scattered huts suffice for the population. There was a "Venda" with the usual tall pole and Saint's picture, which made our friend Sr. Antonio Marcos remark that his patron had here become a Captain of Thieves, and a Teacher of the verb "Surripio." †

Presently, reaching a fine Fazenda, we had another surprise, the second on the same day. Sabará again appeared, and this time the scene was Switzerland. The foreground is a green flat, with a single noble tree; the river bends away to the right with graceful sweep, exposing the slope upon which sits the high-sited city, whose many steeples tell the pride and piety of the old

* An ecclesiastic with certain juridical powers: in matrimonial and other matters affecting the Church.

† A facetia derived from old Padre Vieyra, who made certain of his countrymen, conjugate "Rapiro."

population. Behind it the huge Serra da Piedade curves to meet the Curral; and, in the nearer hills, black slides of Jácutinga show that there is still iron-smelting in the land. High on the right rises the feature so common in Minas, the tall black furnished cross, fronting the little white chapel to which pilgrimages are made. This Morro da Cruz is 2800 feet, more exactly 858 metres (L.) above sea-level.

We entered the city by the normal bridge of the Brazilian Provinces, too long, too low, and too old. It wants raising four feet and shortening one-third, which is easily done. The breadth of the whole bed is 108 metres, but the left bank is cumbered, at the bend of the river, by a large and ever-increasing sand-bank, where the furious Ribeirão de Sabará falls at an acute angle into the Rio das Velhas.* Here, at about half the width of the bridge up-stream, the water averages 44 instead of 108 metres, and there is a quarter-built abutment which should be prolonged to deepen the channel. The expense is estimated at £8000, but at present there is a certain difficulty known as impecuniosity. As usual, it is to be made of the fine Aroeira wood, which grows to a great size down stream; a scantling ten inches by ten, adding immensely to the weight, and nothing to the strength of the construction, seems to be an idea embedded in the Brazilian mind. The Province of Minas has only one suspension-wire-bridge with cables of 2·50 inches; it was thrown over the Parahyba River, at Sapucaia, by a French engineer, M. Astier. It may, for aught I know, be the sole specimen in the Empire. Near Morro Velho good wire is always procurable, and on the São Paulo Railway the cable is of 3 to 3·66 inches, and calculated to bear a strain of twenty-two to thirty tons for a descent of 200 feet. Evidently the suspension bridge is a great economy hitherto neglected.

The picturesque city is the usual long, narrow, mining settlement. It has grown out of wattle and dab to stone and lime. Presently it will be marble. It covers about a mile from east to west, with sundry windings and deviations. The whole is paved, and the pavement is not worse than usual. It is divided into the Old, or Eastern, Town, called "Igreja Grande," whilst

* Dr. Couto makes the Rio das Velhas flow into the Valley of the Ribeirão de Sabará, but the reverse is distinctly the

case. Both meet a little above the bridge and dash at a hill through which they seem to break.

the other is known as the "Barra." The two number six squares, twenty-two streets, and nine travessas, or cross streets. There is a tolerable theatre, where amateurs divert the public. Besides many private, there are four public fountains, which supply the purest water—a necessity here. The position of the city makes the climate exceptionally hot—in fact, Sabará and Morro Velho have the most tropical temperatures in Minas.* Many of the houses are painted—one is red, another pink, with pea-green shutters, and so forth. The Rua Direita has some good shops, where men in leather hats, like the "Matutos" of Pernambuco, gather to purchase goods, wet and dry, for the interior. There are, besides store-keeping, the local industries, lime-burning and making rude gold ornaments. The former comes from a quarry about a furlong below the bridge, the beginning of the calcareous formations, which extend to the São Francisco River. The late Colonel Vaz first called attention to it, and it belongs to the Rangel family.† As yet it has only been pulled at, and the expense of opening it will be some £200. It promises, however, well, and there is a good fall for the rubble. The lower strata are composed of a yellow-grey marble, not very sound, but which, probably, will improve when the workings shall be deeper. The gold employs many people, who turn out coarse rings, brooches, and so forth. The metal, however, is not nearly so pure as that of Diamantina.

We find tolerable lodgings in the Rua das Bananeiras, at the house of D. Maria dos Prazeres, and proceed to inspect the City. Our first visit is to the Largo da Cadeia, or do Rosario. In the centre of the square, upon four stone steps, stands the old pillory, surmounted by two weed-grown 'scutcheons. "Better have a Chafariz," remarks our guide, Major Candido José de Araujo Bruxado, despite his strong Conservative proclivities. To the north, on a commanding site, is the Rosario, a large unfinished shell of cut stone. On the west is the three-storied house of a local aristocrat, the Barão de Sabará, and it is supplied with a thunder-

* Sr. E. José de Moraes found the mean diurnal temperature of Sabará between March 13 and 23, 1862, to be 24°·78 (C.) and the altitude 700 metres. At Jaguára, 646 metres high, between April 18 and 29 the figure was 23°·33 (C.). At Trahiras (570 metres) the air was 22°·49, and the

water was 20°·47 between May 12 and 31.

† The actual proprietor is Sr. José Severiano Continho Rangel. According to some authorities limestone is found higher up the Rio das Velhas.

rod, here much wanted. It rivals the Palacete of the Barão de Catas Altas, in the Rua Direita, which cost £2000, and now lets for 3\$000 per month—at the then rate of exchange about £7 per annum. On the south is a quaint and ancient building, smooth stone below and adobe above, fronted by a deep balcony upon four wooden posts. The bell, and the Imperial Arms upon the floor, tell the Town House; the ugly faces at the roughly-barred windows below prove the prison. We have seen the best jails in the Province at Ouro Preto and S. João, and there is a third at Campanha; the rest are described by the fact that in 1863-4 there were no less than forty-two evasions. On the other hand, pauper prisoners are here, as everywhere in the Brazil, supported by the public; not left, as at Goa and Madeira, to the untender mercy of private charity.

Below the square we passed the neat house and grounds of the Desembargador, José Lopez da Silva Vianna, who died about two years ago. He was a D.C.L. of Coimbra, and his high reputation caused him to be chosen advocate for three "Gold Companies." On a rise beyond it is the Carmo Church, fronted by detached Catacombs; * the façade is ornamented with steatite, cut by the Aleijado. To the north is the Matriz of N^a S^a da Conceição. In former times it was leafed with gold, panned from the river, and the necessary tools were sent out from Portugal. Near it is the small and unpretending Igreja das Mercês. The other temples are the S. Francisco, black and unfinished; the little S^a Rita, in the Rua Direita; the N^a S^a do O; and the Hospício and Convento of S. Francisco de Assiz, on an elevated site to the north. Till lately some Brothers of the Holy Land have been established here in their Hospício da Terra Santa, and during the last ten years they have drained the Province of £20,000, for the benefit of a Jerusalem held by the Turks. †

From the Carmo there is an extensive view of the Ribeirão de Sabará, which higher up takes the name of Macahúbas. ‡ It is

* The catacomb system in the Brazil suggests the Camucis or Camucins, long earthen pots in which the chiefs of the savages were buried.

† Relatório of 1865, p. 39. These missionaries were mostly Italians, and are said to have been independent of the Propaganda.

‡ "Of the Macahúba," or Macaúba

palm-tree, a (thorny?) variety of the Coqueiro (*C. butyracea*): negroes pronounce the word Bocauba, and in other Provinces Macahyba. Dr. Couto writes Mocauba, and the System by an error of accent Macaubá. According to St. Hil. the palm resembles, but is not identical with the *Acrocomia sclerocarpa* of Martius.

a violent torrent after rains, filling up its valley, and sweeping away the bridges, which are, therefore, reduced to "pingelas"—single planks or tree trunks. At present the shallow rill sings pleasant music as it courses briskly down the sandy bed, pitted and heaped with gravel once golden. The highlands on both sides are rough and sealy, producing little save ticks. Beyond the stream lies the inevitable "Casa Grande," large, white, and shut up. The "Emily Mine" is in a red ridge of irregular shape, pierced and tunnelled for gold, whilst the "Capão Mine" is hid by the base of a projecting hill. The houses in the street-road have large "compounds" stretching down to the stream below. Turning to the left is the rough path to the old "Intendencia," through which the gold passed, a large block of building, with the windows guarded by wooden rails, queer, bulging, and antique. Inside the ceilings show the "four quarters" of the globe, the fifth division being to it unknown. The place has lately been bought by Sr. Francisco de Paula Rocha, a Latin professor, who has made of it a boys' school.

Sabará, in old MSS. and books "Saberá," and fully written Saberá bussú—Saberá the Great—took its name from a cacique or chief found settled near the stream. Great wealth was extracted from the deep wells of both river-beds, which are said to be still unexhausted, and from the ferruginous gravel of the banks. The ore was first worked in 1699 to 1700, by the great Paulista explorer, Bartholomeu Bueno Silva, the "Old Devil." In 1707 Fr. Francisco de Menezes and a friend known as Conrado had contracted for the duties paid upon raw meat (*carnes verdes*), and their monopoly was opposed by the Paulista party, under "Julio Cesar" and D. Francisco de Rondon. The latter were persuaded to place their weapons in the public stores, and were attacked when defenceless. This led to the movement which made the famous and formidable "Caudillo,"* Manoel Vianna, a temporary dictator. The Governor Albuquerque, after settling the dispute, expelled the fighting friar from Minas, and the King signed on June 19, 1711, the celebrated letter forbidding all ecclesiastics, missionaries alone excepted, to enter the Province.

In 1711 the settlement obtained the honours of township as the "Villa Real" (de Sabará), and in 1714 it became the Cabeça,

* A guerilla chief, or captain.

or chef-lieu of a "Comarca." Of these immense subdivisions of an immense captaincy, Minas Geraes had at first four, each nearly equal in extent to England proper. Like the other headquarters of the Comarcas, Villa Rica, S. João d'El-Rei, and Villa do Principe, it had its "Casa de fundição," or Gold-Smelting Office, and this was not abolished till 1719-20. In 1788, according to Henderson, the city had 7656 souls, lodged in 850 houses. That author relates from the Ouvidor's mouth a priestly trick which reads badly. A holy woman, Harmonica by name, began to live without food, and the good fathers raised funds to build a house, and to establish a nunnery under the title of S^{ta} Harmonica. The judge, having reason to suspect that her reverence would be killed, declared that the priests should answer for her life, and the result was that she returned to her regular meals like an ordinary Christian. The tale reminds us of the blood of St. Januarius, which liquefied so kindly when Murat overcame its reluctance by a platoon of infantry. In 1801 Dr. Couto gave the place a population of about 4000 souls; this rose to 9347* in 1819. By an Alvará, dated March 17, 1823, it obtained the title of "Fidelissima," and in 1833, when there were troubles in the capital, the citizens marched upon it. On August 11, 1842, the Royalists failed to gain the eminence called Cabeça de Boi, which was occupied by the battalions of S^{ta} Quitéria and S^{ta} Luzia. Next day three columns of the insurgents attacked the city: Alvarenga's by the road from Raposos to Arraial Velho; Galvão's by the Rapa-queijo track; and Lemos' by that of Papa-farinha. Zeferino, the guerilla, assaulted the bridge of Mãi-Domingos, over the Sabará rivulet, and, after twelve hours of hard fighting, the Imperialists were driven away to Caethé and Congonhas. This was the "Victory of Sabará," which was followed a few days afterwards by the crushing defeat of S^{ta} Luzia.

The municipality of Sabará is supposed now to contain 30,000 souls. The city lives chiefly upon the Morro Velho Mine, and, as usual, it will neither make its own improvements, nor allow others to make them for it. For instance, the "St. John Del Rey Company" offered to repair the three leagues of precipitous and dangerous road leading to Santa Luzia; but the munici-

* It is as usual difficult to decide whether the numbers apply to the city or the municipality.

pality, fearing the loss of certain dues, have left the line in all its horrors and its shame. The barbarous feeling known as “desconfiança”* thus, we see, still flourishes. There is a mortal dulness about the place, despite its eight churches; it seems to die every night, and to recover only half life in the morning. It shows more “vadios,” especially about its “Bridge of Coventry,”—a favourite Brazilian lounge, where one prospects black and brown washerwomen—than the visitor to London will see during the first six items of the week; and if you ask them, “Why stand you here all the day idle?” they will reply, if they reply at all, “Because no man hath hired us”—*i.e.*, we have nothing better to do.

This great centre of gold-washing rose suddenly to wealth and importance in the beginning of the last century. Its treasures were nearly worked out in 1825, quite in 1846. Of late certain English mines, concerning which more presently, gave it a partial resuscitation. But its future is still to come. Between Sabará and the capital of the Empire, as M. Liáis has shown, there are only 192 direct miles.† Moreover, the meridian is nearly the same. The navigation of the Rio das Velhas, even now beginning, will place it in communication with the São Francisco River; and it must become, with time, another St. Louis, Mo. I have carefully described its decayed state, and travellers of the next generation will read my description, long and somewhat tedious as it is, with interest.

At Sabará my preparations were made for descending the Rio das Velhas, and I found myself in the hands of a Portuguese storekeeper, living in the Rua do Fogo, No. 28, named Manoel Pereira de Mello Vianna, and popularly called “Piába,”‡ or the Sprat. Unfortunately he had been in England; he spoke our language, and thus he could exploit all the hapless Anglo-Ame-

* Suspicion: the uncivilized Brazilian is remarkably “desconfiado,” like the backwoodsman further north.

† More exactly $3^{\circ} 12' 39''$. M. Liáis gives the true lat. of Sabará S. $19^{\circ} 53' 51'' \cdot 7$ (Niemeyer $19^{\circ} 54' 15''$, and Gerber $19^{\circ} 53' 20''$), and the long. west of Rio $1^{\circ} 13' 48'' \cdot 6$ (Gerber $0^{\circ} 35' 20''$, and Wagner $0^{\circ} 36' 20''$). The following table shows the position of the three cities which demand connection: they occupy nearly the same arc of the great circle of the terrestrial

sphere:—

	S. Lat.	Longitude.
Rio de Janeiro	$22^{\circ} 53' 51''$	$0^{\circ} 0' 0''$
Barbacena	$21^{\circ} 13' 9''$	$0^{\circ} 49' 45''$
Sabará	$19^{\circ} 53' 51'' \cdot 7$	$1^{\circ} 13' 49''$

‡ One of the Salmonidæ described by Gardner: it is two to three inches long, and a vivacious, bustling, peering sprat. It is good bait for the “Maudim,” and other greedy fish, and it is eaten by children.

ricans who fell into his hands. I translate his preposterous bill,* which ends with "My labour gratis." This reminded me of the "Nothin' charged for grief," in the Irish wake. Others may gain by my giving to it publicity. These people always suspect Government Expeditions, when the Brazilian Uncle Sam pays for all, as in the much-satirized surveys of the United States. They cannot believe that you travel at your own expense, instead of burdening the "Empire" or the "Province." How should they, who have never seen it done? But I may justly complain when, in addition to his extortionate charges, the Piába sent me down a river like the Mississippi in a raft whose starboard canoe had a "racha," or leak, hardly stopped up with Sabará clay.

* The Most Illustrious	, debtor to Manoel Pereira de Mello Vianna.
Two new (very old) canoes	200 \$ 000 (worth about half).
For having them poled up	33 \$ 000 (they came from a few leagues below the town).
Two carpenters (6 days each)	26 \$ 400 (the usual double).
Extra planks	48 \$ 993
Awning cloth	26 \$ 400
Sleeping cushion	9 \$ 000
Nails, saws, &c., &c.	67 \$ 586
Total	411 \$ 379

"Meu Trabalho gratis."

Sd. M. P. de M. Vianna.

CHAPTER XLI.

TO CUIABÁ.

Verás separar ao habil negro
Do pezado esmeril a grossa areia,
E ja brilharem os granetes de ouro
No fundo da batêa.

Lyras of Gonzaga.

I WILL conclude this volume with an excursion from Sabará to Cuiabá, made by Mr. Gordon and myself on July 4—5, 1867.

We set out eastward, and presently we crossed the red Sabará Rivulet by a long bridge, the Ponte Pequena or “de João Velho: its hand-rail is so low that a vicious mule would be tempted to try a spring. Thence we ascended the Lilliputian riverine valley, and presently we passed the “Folly,” with a fine verandah on the hill-top to our right. This, the head-quarters of the “East Del Rey Mining Company, Limited,” established in 1861, cost, they say, from £2000 to £2500. A sanguine account of the “immense size of the vein” went home, and the public was informed that “the lodes are in every respect similar in formation and character to those of the celebrated mine of Morro Velho; the facilities for working them are, however, much greater, and the outlay required to bring them into a profitable state would be comparatively small.” The property consisted of two estates, one the “Papa-farinha,” afterwards called the “Emily,” three miles long by one and a-half broad: here the out-crop was described as being 300 to 400 feet above the Sabará stream, which runs 100 fathoms north of it. The other was the “Capão,” about half a mile south by west of the “Emily,” and it was proposed to work both simultaneously.

Both grounds were ceded to the Company for a term of fifty years: the purchase of the whole mining plant, buildings, stamps, and wheels, was effected for £2500; and a royalty of

three per cent. on the gold was made payable to the grantor. The latter, formerly of Minas Geraes, now of France, had bought the two, when Managing Director of the Cocaes Company, for £1200, and though he had employed upon them large gangs of blacks, the mines never produced anything that approached working costs. Furthermore, £10,000 were made payable to said grantor, when the shareholders should have received £10,000 in dividends; and a third and final £10,000 was to find its way in the same direction, when £20,000 should have been divided. Under these circumstances the Company was raised, with a capital of 30,000 shares, each £3.

But, when operations began, the lode, said to be twenty-four feet wide, was found irregular, and much better left untouched. Pyrites was rare, the general formation being a disturbed line of iron and manganese, quartz, and clay slate, in a containing rock of "killas." A shaft was run into the "Capão," and various trial levels to intersect the lode, were dug in the hill-side of the "Emily." A single small set of stamps—now removed—was set up, and even for these there was not employment. The published accounts show an expenditure of £36,000 at Sabará: and the good shareholders enjoy the satisfaction of having most comfortably lodged their employés in a Casa Grande. The "East Del Rey" has therefore walked off to "S. Vicente:" it now wants only a new name, new subscribers, and a new capital.

Here the little Macahúbas River drains the northern face of the Caethé hills and the southern front of the Serra da Piedade. This huge chine towers on our left with jags and saws, blocks and "cheese wrings," of tortuous, micaceous clay slate, resting upon a rough, hard, and reddish ironstone, mostly oxide, and in extreme abundance: here is, in fact, the northern buttress of that range whose southern apex we saw at Itabira do Campo. The vegetation forms a threadbare coat of thin grass, and low grey, scrubby shrub. The best ascent is from the east *viâ* Caethé; the western side has a path, but it is abrupt and unsafe. On the summit, some two and a quarter leagues from Sabará, rises a small white church, which glistens like a pearl in the sparkling sun: conspicuous from afar it will be most useful to surveyors. The Piedade, like the Caraça and the Itacolumi, began civilized life with its hermit; presently the cell expanded to a church, and lastly, D. João VI. presented to it an adjoining farm to be held

allodially and in perpetuum. Many pilgrims still visit and offer candles in this "free, privileged, and manumised chapel." There is a dispute about the height of the Serra's crested head. Spix and Martius make it 5400 feet above sea-level—2400 below what Gardner assigned to the Organ Mountains or Maritime Range. MM. Liais and Halfeld differed about the comparative altitudes of the Piedade and the Itacolumi. Mr. Gordon took observations both on the Piedade and at Sabará, but his instrument appears to have been out of adjustment.*

This range is said strongly to reverberate sound, showing, according to some authors, that it is "fully charged with mineral." The ancients supposed consecrated rocks to emit significant and prophetic noises: we call to mind the "Kenid-jack," or Hooting Cairn of Cornwall, and sundry others, where people are equally affected with folk-folly. The Brazilians quote many apparently authenticated cases of "Bramidos," or subterranean roarings, which they connect with the Mãe de Ouro or gold-pixy. Undoubtedly they often confuse the underground reports with the superficial sounds of an exaggerated storm, the roaring of the wind, and the muffled reply of the cold grey stones; the shivering of the trees, and the falling of decomposed and scaled-off blocks, heard within doors, making the inmates exclaim, "How they snore—how they blow"—and causing them to shudder with panic-fear. We remember the "Schnarcher," or snorers, the two granite lumps on the Barenberg, where popular superstition placed the earth's centre. The subterranean thunders, unaccompanied by appreciable shocks, called the "Bramidos de Guanaxuato," have been mentioned by Humboldt. Those, however, are distinctly volcanic, but in many parts of the Brazil they seem to be heard in the limestone and the sandstone formation. Personally, I have not witnessed the phenomenon, but the mass of evidence is certainly for its existence.

Many a time we forded and re-forded the little mountain-burn with the golden sands and the fishy waters. At places there are curral and weirs of very poor construction, double and sometimes

* On the summit Pelissier's aneroid gave Bar. Reading 26·24. Temp. 77° = 3500 feet. At Sabará Bridge, on the level of the stream, Bar. reading 29·32. Temp. 78° = 568 feet. But M. Liais makes the latter 695 metres, or nearly 2300 feet, almost 500 below the Morro da Cruz, and

these figures are evidently correct. M. Buril (L'Empire du Brésil) offers the following table of altitudes:—

Itambé	1816 metres above sea-level.
Piedade	1774 ,,
Itacolumi	1754 ,,
Itabira	1590 ,,

treble. In other parts there were wretched dams, forming rude leats: they must be carried off by every flood. Here and there the stream was arrested by stakes driven into the gravelly bottom: upon these were piled brushwood and stones to slacken the current and induce it to deposit its gold. A single old "faiscador" or washer appeared: he looked like a gorilla caught in the open, and he glared at us as if we were so many Du Chaillus. His tools were the carumbeia or bowl for coarse gravel, the batêa or platter for the finer sand, and an almocafre, here pronounced almocorf.* This is the iron hoe which turns up the pebbles, and it appears in four shapes, the rounded-conical, the square, the lozenge, and the triangle. Where water abounds the gold is worked by the Monjôlo,† a trapèze-shaped trough of sticks and stiff clay, the broad end raised at an angle of 35°, some three or four feet above the stream level. Into the upper part the auriferous gravel is thrown and water is ladled in, whilst a bit of skin placed at the lower and narrow end arrests the flattened scales and the minute grains, which are specifically about seven times heavier than the stone.‡

The River Valley closed in as we advanced, and became more picturesque: happily for us there were clouds; in these bottoms the heat is excessive, especially during the early warm season, August and September. We presently passed the Pompêo village, often mentioned by travellers: a wretched chapel and broken walls are all that remain of its old magnificence. Caldeugh found on the right bank of the streamlet a formation of chorite slate, with cleavage planes traversed, nearly at right angles, by broad, distinct, and well displayed veins of quartz, often auriferous. The upper soil showed a regular layer of quartz fragments: now much of it has been removed. Beyond Pompêo on the left still rises the old Cuiabá Company's Casa Grande, built by Mr. Edward Oxenford.

After fording the Ribeirão six times we sighted in an "impasse" before us the celebrated "horse-shoe." It is a savage rocky

* In dictionaries we find Almocafre and Almo Cafre, which Moraes explains "Sancho com bico ou ponta, usada na mineração." The word is probably the Arabic Mikhrif (مخرف) an instrument for gathering. The most common shape is the elliptic arch.

† St. Hil. (III. ii. 143) calls this rude contrivance cuyacá, probably a word peculiar to Goyaz: he omits the skin and thus he loses his gold.

‡ Many Monjôlos are seen on the Rio das Velhas, where the people still believe in canjica, or nugget gold: since 1801, however, they have found very little of it.

hollow in the southern sub-chain of the Serra da Piedade, which bristles high above it, and which is to the Cuiabá deposits what the Serra is to those of S. José and the Cural to Morro Velho. Towering some 220 feet in the air were certain "shoots," which announced to us that we had reached our destination. A few poor huts lay scattered about, and there was a little forge that turns out knives and horse-shoes: the old mining proprietress has outlived all luxury, and wears a man's coat over a tattered chemise. At the end of the sixth mile* of tedious road, we passed some twenty head of stamps and three "arrastres," with the other usual appurtenances, and we dismounted at a ground-floor tenement to be received with a true Scotch greeting by Mr. Brown.

After what is locally called a "Bisnaga," we proceeded to visit the Cuiabá works.† The ascent was severe up the eastern segment of the "Horse-shoe," which is said to contain six several lodes running east and west. The lower part of the formation is by far the richer, and it belongs to the Vaz family, who by rude hand-work produced five oitavas of ore per ton. The Company's portion, situated higher up, is known to be poor; and northwards the lodes are much disturbed. As we rose we could see the clay slate dipping from west to east, and the mountains bluff to the west: it is not known how the strata underlie the mineral formation.

We passed the "Serrote" or midway workings, a ridge running nearly north to south, and what miners call "lurched" or heaved off. Here, as is shown by the red ground, a large surface had been washed. To the left and higher up was the little mining village "Cuiabá." We entered the Terra Vermelha Gallery, the highest digging, and about forty fathoms long: there being no means of ventilation the smoke of the late blasting hung heavily. I could not see any possibility of drainage, and I judged that the water would soon stop further dead-works—sinking and driving. The roof seemed to be solid, but prolonged excavation will soon

* Dr. Gardner says two leagues (I presume geographical) from Sabará. The prospectus of the East Del Rey Company made the latter place seven miles east of "St. John Del Rey." I should read nine—a total of fifteen to Cuiabá.

† A gourd in bottle shape is called

Cabaça, our Calabash: Cúia or Cúya is a section of the same gourd used by the indigens as a skillet or cup, and -abá, means the place of. The capital of the Matto Grosso Province is usually written Cuyabá: the mine Cuiabá.

necessitate timbering. The formation is that of Morro Velho, quartz and pyrites: but the latter is not equally disseminated, and the scraps are rich whilst the bulk is poor. The mundic is apparently copper pyrites, which may contain silver with arsenic. - The Brazilians have different names for the rock, "Pedra de Campo," quartz boulders; "Olho de Porco," a blue quartz with iron pyrites and free gold;* "Cáco," soft sugary quartz containing the precious ore in olhos or pockets; and "Lapa," the usual killas. As much as nine oitavas have been taken from three tons of stone. Much blasting is required, but the stuff being more brittle than that of Morro Velho, is easier to spall and stamp. Amalgamation works have not yet been used.

About midway is the "Shallow Adit," now fifteen years old, and some 109 fathoms long: it was driven to meet the "Serrote" and to unwater the mineral above that region. According to the Messrs. Vaz the ore is here rich. We found a primitive tramway, and the wooden rails where exposed to friction had guards of thin metal plates.† We then visited the lowest site, "Vivian's Level," alias "Mina do Cedro," thirty fathoms long. This will drain at a lower point the "Serrote" and the "Fonte Grande," which is close to it, on the left. Thus also stone can be got out at a moderate cost for the stamps. The line was in soft clay, and very wet: its western direction seemed to run under the "Fonte Grande" ravine and Córrego, which was on our left, and thence to pass straight into a worthless mass of killas. A dozen workmen or so were preparing to lay a tramway upon a newly cut road leading to the spalling-floors, which are seven fathoms below the shoots and these thirty above the stamps.

We had now done a fair day's work, and we were ready for our wage of rest. The house was not a Casa Grande, but none the less hospitable therefore, and Mrs. Gordon had not forgotten to supply us with a huge basket. The evening also at this elevation was delightfully cool and clear. Our good host, Mr. Brown, has been seven to eight years in the Brazil. He came out here as Receiver and Manager, under orders of the Court of Chancery, to the Cocaes Company, which, at the petition of its share-

* I have seen some splendid specimens of this rock brought from a site very near the city of S. Paulo.

† In the Brazil, where woods, hard as

many metals, are abundant and cheap, it is strange that these rails have not generally been adopted for small works.

holders, was in process of "winding up." It was desirable to "realize" and to settle affairs without any further call upon actionnaires, who are not registered. He has preserved all his energy, he boasts that his house contains the only private printing-machine in the Province, and he proposes a Company with a capital of £100,000 in 20,000 shares. The estate, a peninsula between the Macahúbas and Gáia streams, is seven miles long by two to three broad, and is well supplied with wood and water. The six lodes have been little troubled, although formerly a hundred head of stamps worked at once, and the yield was 2—16 oitavas per ton—the stamp-sand being simply panned. The ground belongs at present to many small Brazilian owners, and a section of it, neither large nor valuable, is part of the "Cocoes Estate." Meanwhile only one English miner and forty to fifty free natives are employed; and mining,—like farming, racing, or ballooning,—on a small scale, is not apt to pay.

A few words concerning "Cocoes," alias the "National Brazilian Mining Association"—even foreigners here have a lust for high-sounding names. The little village N^a S^a do Rosario de Cocoes* lies upon the Una River, in the same range as Gongo Soco, which is about eight miles south by west: it is a cold, humid, but healthy site, 3400 feet above sea level, distant thirty-two miles from Sabará, and fifty from Ouro Preto. Dr. Couto, who visited it in 1801, declares that the once rich stream had then been worked out (todo lavado), and that the miners had ascended the hills to find better washings: he detected in the heights huge spoil-heaps of red, ash-coloured, and purple copper. Here still resides the "intrusive President," José Feliciano Pinto Coelho da Cunha, who undertook Minas in 1842, and who is now Barão de Cocoes,† commanding the National Guard.

The lode is Jacutinga. It is here a micaceous iron schist, or slate, dipping easterly at about 30°, striated, coloured pepper

* I did not visit Cocoes. Cocal, a word found on the Rio de São Francisco, is a plantation of Coca (*Cocculus indicus*, which Moraes also calls Mata-piolho, and says is used to narcotize fish). St. Hil. (l. i. 444) suggests that it may be the plural of Cocão, une sorte de bois du Brésil que l'on emploie dans les charpentes." But the plural form

of Cocão is Cocões, not Cocoes.

† He is not wealthy, having divided amongst his children almost all his property except the house in which he lives. His brother, Colonel Felício José Pinto Coelho da Cunha, was the first husband of the celebrated beauty, the late Marquiza de Santos.

and salt; now soft and friable, then hard and passing into ferruginous sandstone. The walls of the lode generally are blue clay-slate, and the foot-wall or under-wall is composed of fine specular micaceous iron, in large slabs bright as a mirror. The better shoots are tolerably rich. Of pyritic formations there are three, or some say two, longitudinal strikes through the mineral part of the estate: these dip west to east, and the underlay is about 40° south.

In 1830 the land had been surveyed by M. Ferdinand Halfeld, and belonged to several Brazilian proprietors, amongst whom the Barão de Coceas was the chief man. Three years afterwards it was rented by the Company for a term of fifty years, and the lease has thus about sixteen to run. Mr. Macdonald, Chief Commissioner, and the Mining Captain, Mr. Thomas Treloar, began work in June, 1834. Under the rule of Mr. Roscoe, Mr. Goodair (a Portugal-born Englishman), the late Mr. Henry Oxenford, Senior (1847), and Dr. Gunning,—who went out as “Medical Missioner,” to the Brazil!—the mine yielded some £100,000, but never paid its costs. When Gardner visited Coceas the total expenses had been £200,000. The chief shaft was fifty fathoms deep, and the hands were thirty free Brazilians, thirty English miners, and 300 “Company’s blacks.” He admired the conspicuous church and the neat houses in rich gardens; declaring the village to be the prettiest that he had seen in Minas. In 1850 Dr. Walker found the water so deep that the mine was unmanageable. In 1851 there was a “run:” the walls came together, and the crushed timber carried away the pumping gear, choked up the engine shaft, and filled the level with fragments of rock. Mr. William Treloar wound up affairs. The unexpired lease of the Association may easily be taken up, but the 10 per cent. royalty must be reduced to 4, if profit is to be expected.

* * * * *

At Sabará we concluded our 500 miles of land journey through the richest and the most popular part of Minas Geraes. Here, however, ends the excursionist portion, much of which, I have said before, will soon form a section of the nineteenth-century Grand Tour. But what now comes is not yet exactly a pleasure trip down the Thames or up the Rhine: there are hot suns, drenching rains, and angry winds to be endured; there

is before us a certain amount of hardship, privation, and fatigue, with just enough of risk to enliven the passage; and, finally, there are nearly 1300 miles to be covered by the craziest of crafts, caulked with Sabará clay.

END OF VOL. I.





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THE
HIGHLANDS OF THE BRAZIL.





THE PAULO AFFONSO, KING OF THE RAPIDS, THE NIAGARA OF BRAZIL.

THE
HIGHLANDS OF THE BRAZIL.

BY CAPTAIN RICHARD F. BURTON.

F. R. G. S., ETC.



Brazil is usually represented by a Tupy Woman.

VOL II.

LONDON :
TINSLEY BROTHERS, 18, CATHERINE STREET, STRAND.
1869.

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EXPLORATIONS

OF THE

HIGHLANDS OF THE BRAZIL;

WITH

A FULL ACCOUNT OF THE GOLD AND
DIAMOND MINES.

ALSO,

CANOEING DOWN 1500 MILES OF THE GREAT RIVER SÃO FRANCISCO,
FROM SABARÁ TO THE SEA.

BY

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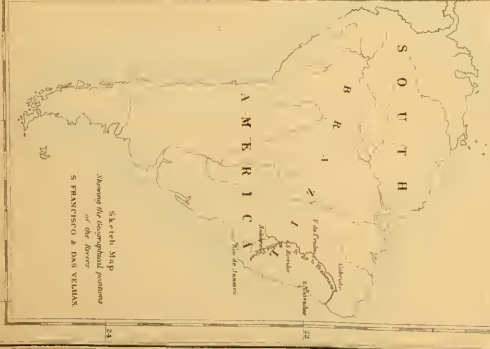
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Map of the RIVERS DE SÃO FRANCISCO & DAS VEILHAS

(FRANCIA)
Parish of Vila Rica

Scale in Miles
0 10 20 30 40



THE
HIGHLANDS OF THE BRAZIL.

CHAPTER I.

SABARÁ TO SANTA LUSÍA.

DEPARTURE.—ADIEUX.—THE RAFT, AND WHAT IS IN IT.—THE “BRIG ELIZA.”
—THE STATE OF THE RIVER.

“Messieurs les délicats . . . voulez-vous vous embarquer pour vivre de telle façon ? Comme ie ne vous conseille pas.”—*Jean de Lery*.

WEDNESDAY, *August 7, 1867.*—We walked down to the Porto da Ponte Grande,* where the ajôjo or raft lay. I never saw such an old Noah’s Ark, with its standing awning, a floating gipsy “pál,” some seven feet high and twenty-two long, and pitched like a tent upon two hollowed logs. The river must indeed be safe, if this article can get down without accident.

All the notables of the place witnessed the process of embarkation. Miss Dundas broke the bottle with all possible grace upon the bows, and christened my craft the “Brig Eliza,” and two pair of slippers were duly thrown at my head. Many “vivas” were given and returned, and all embarked for a trial-trip—shall I call it, with the Royal Geographical Society, a “tentative expedition”—of a couple of miles. When the fifteen souls came on board, they sunk the article some three palms, and deluged the port platform, making the headman, or pilot, “Manoel de Assumpção Vieira,” very nervous—already he began to predict swamping, “going down in a jiffey,” and being dashed to pieces by the rapids. We shot past the Pedra Grande, a quartzose rock in mid stream;

* The upper landing-place at the Ponte Pequena Quarter is called “Porto do Gallego,” from a stream and an old gold washing hard by it.

the Câmara has threatened for years to remove this obstacle; unfortunately no one here can fire a charge under water.

At the little "church village" of Santo Antonio da Roça Grande, the animals were waiting to carry home the non-voyagers, my wife—who was incapacitated for accompanying me by a bad fall and a serious sprain—included. My hospitable and warm-hearted escort stood—as the setting sun sank behind the mountains—and watched the raft turn the last corner, and float off into the far mysterious unknown. What made me think of the Nile story told by Mr. Curzon, of the white man paddled by dark Amazons adorned with barbaric gold, down the streams unfrequented by the traveller? I confess to having felt an unusual sense of loneliness as the kindly faces faded in the distance, and, by way of "distraction," I applied my brain to the careful examination of my conveyance.

The ajôjo, or, as it is called in other places, the "balsa," here represents the flat boat of the Mississippi, and of the Arkansas "chicken thieves," in the days when, according to Mr. Nolte, men spent a month between the mouth of the Ohio and New Orleans, and then walked back. On the Rio das Velhas, however, it cannot yet be said to have become an institution, and I am the only traveller who has yet passed down from Sabará to the Rapids of Paulo Affonso. As explorers, frontier-men, and other "pioneers of civilization" will have to use it upon the still unknown branches of many a stream, including the Amazons River, a detailed description of the craft may not be without use.

The usual ajôjo* is a bundle of two or three canoes, in the latter case the longest occupying the centre. The best materials are the strong and light Tamboril Vinhatico, and "Cedro," or Brazilian cedar, about one inch thick; mine were of "Peroba,† nearly two inches deep, and consequently too heavy. We drew two palms, approaching a foot and a half (seventeen inches) even without cargo. There is sometimes a helm, always fixed to the longer or the longest boat; if not, the pilot poles or paddles, standing or sitting in the stern. The canoes should be lashed together by hide ropes, with an interval of six to eight inches, not connected as mine were by iron bars joining them at both

* Or ajoujo. In Portuguese, as in most of the Latin languages, the circumflex often denotes crasis, or contraction by the omission of a letter whose sound is or is

not retained.

† A fine hard wood, formerly reserved by government for ship-building.

stem and stern, and thus destroying all elasticity. Round or squared poles fastened by leather thongs to the gunwales, support the "soalho," or platform, which should fit tight to the sides, otherwise the craft, when "broaching to," may be water-logged. This boarding of ten planks, laid horizontally, projects laterally into coxias, trampways eight to ten inches wide, where the men work.* My canoes, thirty-three feet four inches long, and when joined, six feet broad, formed a solid foundation for the standing awning, a somewhat risky comfort. It was made fast by five wooden stanchions, of which the two pair fore and the one aft, were supported, besides being nailed, by strong iron knees, or stays. The tent was of rough Minas cotton, protected in the forepart, where I slept, by wax-cloth from Morro Velho; and it was a kind of "pál," to throw off the rain. Facing the head, and in the coolest place, was a tall deal writing-desk, which rivalled the awning in catching the wind. Behind this, on each side, stood a Giráo,† or boarded bunk, for sofa and bed, raised on four uprights. Amidships was the table, a locked box of provisions flanked by two stools (tamburetes). In the stern stood the galley, a similar bench, but lined with bricks, and around it the batterie de cuisine, iron kettles and pots, cups and goblets, of course not forgetting the invaluable frying pan.‡ Two large jars of porous earth (talhas or igaçabas),§ carried the supply of water,

* When the Ajôjo carries merchandise, the platform is reduced to the gangway. Coxia also means a stall, a corridor in a hospital, a passage in a warehouse, &c.

† The Giráo or Jiráo, according to the T. D. is properly a hut on piles, used as a granary. Sr. J. de Alencar uses it as the "horse," or small gallows-shaped frame of the Jangada-raft. In the south it is called "Noque." Generally in the Brazil, Giráo is applied to various rude pieces of furniture, shelves of wood or hide, a frame work for smoking or sun-drying meat, and so forth.

‡ The provisions were jerked meat (Carne seca), in Pernambuco called Carne de Ceará, in other places Carne do Sertão and Carne do Sol, when simply cut in strips, hung in the air and sun dried, fine coriaceous matter for pulling at with the teeth. Lard (Toucinho) is never wanting in these parts; and rice and beans can generally be found. The men also received a dram of rum (Cachaça) every evening. For my own stores I had a box with a lock: it contained white salt and sugar—

the brown can be found everywhere—mustard and black pepper; here they cannot be bought, while cayenne grows wild. I also had tea—it is no use to carry coffee. The good Mr. Gordon had supplied me with excellent salt beef in rounds, with tongues and with bread, to relieve the monotony of the Brazilian rusk; also, in case of sickness, with a bottle of Cognac and another of gin, which might take the place of Pinga. Finally, a few tins of beef, sardines, and potted meats, for a "treat," were stored in the table-box. Mr. James Smyth, of Morro Velho, gave me a few valuable boxes of excellent Havannahs, which were highly appreciated by my hosts. In Brazilian travel cigars are soon exhausted, and it is the custom to pass round the case.

§ Ygaçába is a Tupy word, generally used in these parts. The first letter had amongst the savages a dubious sound between "i" (or "y") and "u." Hence the Portuguese wrote it in various ways, as "ira" or "ora," honey, and una for yg, una, a dark stream.

which was renewed every night, and allowed to stand for a day. The President of São Paulo advised me not to drink liquid from the stream, but all on board did so, and so did I. Mr. Gordon had taken care to provide the raft with a stout boat-hook, with an anchor in the bows, a standing wonder to the riverines, who had never heard of Anacharsis the Scythian, and with strong English ropes for "cordelling"*—these are of the greatest consequence when swinging round the rapids.

The crew numbers three,† old Vieira and his sons, who are to receive, besides food, 5\$000 per day.‡ Two stand in the bows with poles, which they prefer, as being easier to use than paddles. The former, called varas, and when large, varegões, are stout elastic cuttings of the supple Peroba or Parahybuna wood, fifteen to twenty feet long, by two inches in diameter. They are shod with iron (ferrão), and, when not, the ends must be sharpened before shooting a rapid. The points are of various kinds, the "Ponta de diamante" is a long pyramid, with a ring band; the "Pé de Cabra" is cloven-footed, and the "Gongo" has, in addition, a boat-hook to hold on by; whilst the Forquilha, which rarely comes into use, is a hooked pole, that arrests the course by catching trees. The paddles (remos), used in deeper waters, are artless articles, and vary in shape every few hundred miles; here they are straight and flattened spatulæ. The next set will have handles four feet long, ending in a blunt lozenge one foot broad; its rowlock will be a lashing of hide rove through a hole in the gunwale. This article has no leverage. At the junction of the two streams I found fine elastic paddles of the veined and yellow taipóca wood, which not a little resembled our ash. They were six feet in length, and broadest at the lower end, which was rounded so as to present a clean surface when used as a pole against bank or tree, or ended with trimmed beams of a heavy Cactus, which sinks in water like lead, and which is capable of doing very hard work.

The men were mere land-lubbers, quite unlike those of the S. Francisco. They feel, or affect to feel, nervous at every obstacle. They have been rowing all their lives, and yet they know not how

* Locally called "Sirga."

† For the up trip six men are necessary, and the work of one day down stream takes three.

‡ I carried Brazilian bank-notes, taking

care that they were new and of small values, between 10\$000 and 1\$000: besides these, a small bag of coppers and of silver pieces for especial occasions, was in store. Total, 1:500\$000.

to back water ; curious to say, this is everywhere the case down stream. They pull with all their might for a few minutes, when the river is rapid, so as to incur all possible risk ; and, when the water is almost dead, they lie upon their oars and lazily allow themselves to be floated down. Thus, during the working day, between 7 A.M. and 5 P.M., very little way is made. They have no system, nor will they learn any ; it is needless to suggest placing rollers under the canoes or stamping upon the platform when we ground ; they never saw such things done, and they don't care to see them. All have the appetites of Abyssinians, and suck sugar-cane like their "Indian" ancestry ; they might take for motto,—

Au boire je prens grant plaisir,
A viande frieiche et nouvelle:
Quand à table me voy servir
Mon esprit se reñouvelle.

They are energetic only in performing upon the cow-horn, the *bozina de chifre*, derived from the ancient savages,* with this they announce arrival, salute those on the banks, and generally enjoy the noise.

My sole attendant is a Morro Velho boy, named "Agostinho," lent to me by Mr. Gordon. He knows something of the river, of gold washing, of diamond digging, and of rough cookery. Despite occasional attacks of dipsomania, he proved very useful, and at Rio de Janeiro he was returned into store with all the honours. "Negra," the mastiff, wild eyed as an ounce, becomes very savage when tied up, and barks as if under a waggon tilt. She is the terror of those who see her for the first time, and she will prove useful—in these parts all men travel with fierce dogs. I have two passengers on board. One is a certain Antonio Casi-

* The Tupys called it "Mamiá," and formed it of two pieces of wood joined together with thread and resins. Ferreira, writing in the last century, says of these rude trumpets that, "played in the fore-part of the canoes whilst travelling in the interior, they serve to summon the Indians before starting from the places where the embarkations are moored." According to Prince Max. (ii. 179), the Botucudos (whom he will call "Botocoudys,") termed it *countehoun-cocann*, and made it out of the tail of the great armadillo (*Dasybus gigas*, Cuv.). The more civilized Coroados used horns to call one another in the forest. On

the Upper Amazons the horn is made of two pieces of thin hollowed wood, joined together by a lashing of twine and coated with wax : they are blunderbuss-shaped, four feet long, with a red mouth-piece, and a deep mellow sound. The Indians use them to frighten away the monsters of the deep, and, like Africans, to show by their noise that they come as friends. My men also enjoy the use of the "bandurra," or small viola, a wire-guitar, and the *Marimbáo*, a Jew's, or rather Jew's harp : the name is distinctly Portuguese Angolan.

miro Pinto, popularly called "Onça;" by profession a fogueteiro, or rocket-maker; he asked for brandy at once, and the pilot, pointing to his fiery face, exclaimed, "Chupa muito," he sucks (the monkey) much. We presently landed at a breeding estate, where his son, the capataz,* or overseer, looks after some 2000 head. The other was a Southerner-immigrant, Mr. Hock; this old pilgrim-father had brought with him a party of twenty souls, all had been spirited away by the indefatigable "Sprat" of Sabará, and like Rachel, he declines to be just now comforted. His present idea is to make a railway on condition of receiving alternate sections of sixty square miles, or thirty on both sides of the line. In the United States, where the contractors were satisfied with grants ten times less, the world predicted their ruin; but the new lots attracted settlers, and paid remarkably well. I would willingly see this system adopted in the Empire, which now suffers from paying seven per cent. interest upon vast sums extravagantly laid out. Mr. Hock accompanied me as far as Jaguára.

Between Sabará and Jaguára the river line is officially twenty leagues, 1,118,490 metres, the breadth is between forty-four and seventy-seven metres, and the average † slope 0^m·4135 per kilometre. This distance, about $\frac{1}{6}$ th of the whole length, was partially cleared out for 6:000 \$ 000, and this figure will be useful in estimating the total required. The stream is deeply encased; the reaches are short, and we seem to run at the bluffs, where high ribs come down to the bed, and cut the bottom into very small bends. As usual in the smaller Brazilian rivers, there is hardly any breadth of valley; in places it is a mere ledge, hardly to be called "dale" or "level" at the hill-foot. The banks, ‡ often perpendicular, are of gravel, sand, or dark puggy clay, and between October and January they are deeply flooded. The pilots speak of 16 to 20 palms rise, and of small bayous, more often flood-lagoons than filtration-lagoons, formed in the flats. The

* Formerly called Amo or Vaqueiro; he receives a certain proportion of the stock as pay, and has complete command over the "Campeiros" or "Moços," who are mostly youngsters.

† Of course the current greatly varies, and in some places the water is almost still. According to M. Liais, the river at Sabará stands in the dry season 695 metres above sea-level, and at the confluence it is 432·3

metres. The distance between the two places is 666,080 metres, or 361·28 miles, or 120·43 geographical leagues, and thus the general declivity is 0·3941 per kilometre. The slope of the Upper São Francisco, between the Paraopéba River and the Rapids of Pirapora averages 0^m·4890.

‡ Here called Barrancos or Barreiras do rio, the classical Ribas or Ribeiras not being used.

bottom is of coarse pebbles and finer arenaceous matter, without mud, except where deposited by influents; at this season there are many shoal-islets or sand-bars, and bed-islets in mid stream. We find a few rivers but no "Cachoeiras," or rapids, properly so called. The most troublesome feature is the shallow (raseira);* at places where the bed broadens we ground with unpleasant regularity, and our crew has to tumble in. This part abounds in snags, locally called "tocos," meaning tree trunks; the "sawyer" is unknown, but there are galheiros (pronounced gayyeros), trees with upright and projecting branches. Sometimes they appear like poles, placed to stake the channel. The tortuous bed, never showing a mile ahead, prevents anything like waves, though the wind is in our teeth, and it will long continue so. Where there is much depth, the water boils up† and spreads out, sometimes the effect of a floor uneven with pit holes, and of the mid stream flowing faster than the surface or the bottom, where it is retarded by friction.

At this time we see the worst of the Old Squaws' River. The "Sol de Augusto" is proverbially bad, especially between two and four P.M. Heavy morning mists enforce idleness, and will last till the opening of the wet season, in September to October. There is a minimum of water and a maximum of contrary wind, sometimes, but rarely, chopping round to the south, and blowing with strong flows when the regular current ceases; this is not the case during the rains.‡ On the other hand it is the "Moon of Flowers;" the poor second growth—virgin forest is unknown—teems with the Flôr de Quaresma, with its bunches of purple beauty, and the hill tops are feathered by the tall Licorim and the Guariroba palms.

After about three hours we passed the Pedra do Moinho, the only really bad shoal, made worse by rocks on the left hand; the first sight of human habitation was a little farm near the Lagôa da Fazenda do Baraõ (de Sabará), a flood-fed pool. Opposite it, on a narrow step of poor ground, was the baronial manor-house with

* M. Liais proposes to narrow the stream artificially, between Sabará and Roça Grande especially. But we came down easily in the worst month, drawing, when loaded, at least 20 inches.

† "'Sta fervendo," the men exclaim. This must not be confounded with our popular term "boiling water," that is,

when the wind forces the waves one way and the tide checks them the other, thus making them lose their run, rise, dance, and bubble into points.

‡ During the rains there is least wind, and it does not always accompany even thunder and lightning.

a queer green portico, like Mtoni, near Zanzibar City. Then came sundry breeding fazendas and Retiros,* which sell fat and good jerked meat for 3\$000 to 3\$500 per 32lbs. The cattle, numerous but degenerate, stand in the water or bask upon the sunny sand, and the horses gathering upon the grassy hill sides, stare snorting at our awning. In rare places there are patches (canaviaes)† of stunted sugar-cane.

Near the house of José Corrêa, where the river forks to east and west, inclosing a hilly island, we found the "Barque Jaguára." She was loaded with the enormous secular logs for Morro Velho. This large flat craft, 105 feet long by 24 feet broad, and 24 inches in depth (pontal), built of the hard Vinhatico and Canella woods, with ribs of Páu d'Arco, and iron-plated bottom, is triangular fore and aft. The weight is 32,000 lbs., of which the greatest part is metal. Unloaded she draws four inches, and increases one inch per four tons; she carries seventy-two tons down the channel, twenty-two inches deep, between Macahubás and Jaguára, and she makes Sabará in twelve days from the latter place, returning in two or three. Evidently a steam-tug will be a success here, without expending much money upon the river bed.

"You'll never reach Trahiras!" cried the people on board the barque, deriding the "Eliza." And indeed we seemed likely to waste much time. However, if we crept on slowly, it was surely, and the Morro da Cruz of Sabará, which early in the day was a tall bluff to the west, presently gave us a parting look from the south-south-west. As evening approached the weather waxed cool and clear, and the excessive evaporation gave the idea of great dryness; my books curled up, it was hardly possible to write, and it reminded me of the Persian Gulf, where water-colours cannot be used because the moisture is absorbed from the brush. The first view of Santa Lusía was very pleasing; a tall ridge about a mile from the stream, was capped with two double-towered churches, divided by fine large whitewashed houses and rich vegetation, with palms straggling down to the water.

* The Retiro (dim. Retirozinho) here means a small breeding estate, where the absentee landlord establishes a capataz.

† The desinences "-al" and "-edo," (plural "-aes" and "-edos," as Olival or Olivado, correspond in Portuguese with the

Latin -etum, and the Tupy "-tyba" or "-tuba," e.g. Indaiá-tyba, a place where the Indaiá palm abounds; Uba-tuba, a site where the Uba reed is plentiful. It must not be confounded with -uba, or -uva, a tree.

I landed at the "Porto de Praia de Vicente Rico," above the bridge, and ascended a hill lined by hovels, with torn calico for window glass; the path showed remnants of a slippery grass-grown Calçada. The "Hotel," kept in the Rua Direita by a "Doctor" Joaquim de Silva Torres, had broken its back, and attendance might be defined as the power of clapping hands and ejaculating "Pst" ad libitum. On the other hand, the bill was a mere trifle.

A walk up town led to two churches, the Rosario and the Matriz, the latter with its steps in ruins. I left my two letters of introduction, and heard no more of them for some time—the recipients, of course, could not call before the next noon. The Baroneza de Santa Lusía, who has a large house in the main street, with a front all windows, was an invalid: the venerable lady is the widow of Sr. Manoel Ribeiro Vianna, who founded the "S. João de Deus de Santa Lusía," a hospital for sick paupers. He died before the work was finished, and his relict magnificently dowered it with a house, furniture, and £3000.

The gold diggings which built Santa Lusía were of two kinds, Cascalho and "Ouro de Barba," Gold of the Beard. The river floods deposited particles upon the bank, the sods were cut* and the grass was shaved off to be panned, hence the picturesque popular term. Hard "Marumbé" iron stone still abounds. The Municipality, which in 1864 contained 22,980 inhabitants, 1915 voters, and 48 electors, might be rich with an improved system of agriculture. The land supplies sugar in quantities, a little coffee and "mantimento," rice and manioc, beans and millet, the Ricinus plant, whose oil is chiefly used for lamps, sweet potatoes (*Convolvulus edulis*), † and the Cará-tuber, together

* After catching the deposit of two years the sods are sliced off one finger thick, and 2 to 3 inches deep are taken up after five years' rest. Lower down stream I saw the cakes heaped on the bank.

† M. Renault, who has made an especial study of the Cará and the *Convolvulus edulis*, has obliged me with the following information:—

The Carás belong to the family of the Dioscoreaceæ, created from that of the Asparaginae, and the genus *Dioscorea bulbifera*. There are six known species, of which all, except No. 5, have a fecula superior to that of the potato. The cultivator opens,

in a light soil by preference, large deep holes, to whose proportions the root is supposed to fit itself; these are filled with dried grass to support the cuttings, which are covered up with a little earth. The root is cooked like the potato, and is eaten with or without sugar or sweet-meats; its flour enters into cakes and puddings:—

1. The ordinary Cará (*D. sativa*) produces a spheroidal tuber, at times attaining the weight of 30 lbs.

2. The Cará de dedos, or palmated (*D. Dodecaneura*), resembles in shape a man's hand.

with small timber; while the river is exceedingly rich in fish, which finds its way to Morro Velho. To judge from the streets, prostitution is the most thriving trade; but all assured me that it was outdone by Cruvello, a city further north, and ten leagues to the west of the main artery. Both of these are "church-towns," visited by the planters on Sundays and holidays.

The little Arraial became on July 8, 1842, the site of the acting Presidency; and here on August 20 of the same year, ended the revolutionary movement. The intrusive President kindly disappeared at night, and the then good genius of the Conservative party, General Barão (now Marquez) de Caxias attacked the insurgents. The fight raged around the bridge, beginning with early morning: the field was still doubtful at 3 P.M., when the 8th Battalion of Regulars occupied the highest point of the village, and put the enemy to hopeless flight. The chiefs, Srs. Ottoni, José Pedro, Padre Brito, Joaquim Gualberto and others, were made prisoners of state, and since that day, to them disastrous, the Ultra-Liberals have ever been called "Lusías."* St. Lucy or Luiz, I may remind you, is the patroness of the blind, and generally holds in her hand an eye apparently gouged.

3. Cará Cobra (*D. hyperfolia*), supposed to resemble a serpent.

4. Cará Mimoso (*D. triloba*); its small roots produce a fine fecula.

5. Cará Tinga (*D. alba*) grows wild in the Capoeiras of Minas, and is the least esteemed. The spheroidal root is a little bigger than an ostrich's egg, the skin is white, and covered with small asperities, and boiling water softens it but little; it is cooked under ashes, and is eaten when a quill can be thrust into it.

6. Cará do Ar (*D. Peperifolia*). This species also produces climbers, sometimes 12 to 13 feet long, and as many as 40 fruits, weighing 1 lb., in shape a rhomboidal tetrahedron. The climbers die after fruiting, and reappear next year. This tuber is reproduced from the fruit, and yields within the first twelve months; whereas the other five kinds are propagated by cuttings of the stalk, to which are attached some of the fibrous roots of the climber. This Cará do Ar has no maladies nor enemies, and it would be a boon to Europe. It requires little care, once planted it lasts for many seasons, it can be crowded without injury, and it wants only a somewhat tall support. A single stem yields ten times more than

the potato, and it would save much surface by demanding very little ground.

There is also a "Cará do Mato," the tuberculous roots of a wild Cará much eaten by the Indians.

The Carás, like the true yams and the sweet potato, have often been confounded with the Topinambours (vol. i. chap. 8), because all are tuberous roots, and were imported from America.

The sweet potato belongs to the family Convolvulaceæ, and to the genus *Convolvulus edulis*. Of this plant there are four well-known species:—

1. *Convolvulus edulis*.
2. *C. tuberosus*.
3. *C. esculentus*.
4. *C. varius* (Martius).

* "Lusía" was opposed to "Saquarema," which some travellers call "Sagoarema." It is a village and a water on the seaboard near Rio de Janeiro, and being the headquarters of the "old Tory" party, especially the families of Torres (Itaborahy) and Soares de Souza (Uruguay), it became a noted name. The term "Casudo," somewhat similar, is taken from the Rio Casudo, between Minas and S. Paulo.

CHAPTER II.

SANTA LUSIA TO JAGUÁRA.

MACAHÚBAS OF THE NUNS.—HOSPITABLE RECEPTIONS.

Que se a abundancia à industria se combina
Cessando a inercia, que mil lucros tolhe,
Houverá no algodão, que alli se topa
Roupa com que vestir-se toda a Europa.

(*Caramuru*, 7, 48.)

AUGUST 8:—The morning was delicious, and the face of nature was calm as if it could show no other expression. The sword-like rays of the sun, radiating from the unseen centre before it arose in its splendour, soon dispersed the thin mists that slept tranquil upon the cool river-bed. We shot the Ponte Grande de Santa Lusía, leading through Lagôa Santa, distant three leagues, to Cruvello and the “backwoods.” It was the usual long crooked affair, with twelve trusses or trestles in the water and many outside, showing that the floods are here extensive: an older erection has disappeared. The girders are rarely raised high enough, and an exceptional inundation sweeps them away, leaving bare poles bristling in the bed, and dangerous piles under water. These must be removed before the stream can be safely navigated.

About two miles below Santa Lusía the water becomes deeper, and the country changes. The right or eastern side is rough and hilly, with heights hugging the bed. Near the other bank the land is more level, and the soil shows a better complexion, by which both sugar-cane and timber profit. On the uplands, extending to ten miles, the superficial formation is of four kinds. The best is the rich ferruginous chocolate-brown alluvium, based upon a mountain limestone, blue streaked with pure snowy lines; the second is the red soil underlaid by the same calcareous matter. The soft black alluvial loam, considered

A 1 in the Mississippi Valley, is here the third; and the worst is the white sun-scorched ground without iron. On both sides are saltpetre caves, and the produce is prepared at the mouths by a simple process which we shall presently see. I heard vague reports of salt-diggings, which probably refer to the Salinas about the Paracatú River described by old travellers.

After the first hour we reached the Fazenda da Carreira Compridar* of the Fonseca family: it supplies provisions and Restilo or rum. The lands extend far up the hills, and the "Engenho" or sugar house is on a ledge near the stream, which loops to the south-east. It was working when we sped by, and the music reminded me pleasantly of certain water-wheels in Sindh, Egypt, Arabia—in these lands of the Future any suggestion of the Past is a god-send. Establishments with water-power motors pay 40\$000 per annum, those driven by bullocks half that sum, and upon the produce of both there is, when entering towns, an octroi of 0\$320 per barrel of thirty bottles. It will be better for the people when circumstances admit of a much heavier taxation.

This part of the river shows many contrivances for exploiting a far more valuable industry, the vast shoals of fish which haunt the waters. The usual weir (Gamboa or Curreal, not Camboa and Coral) is accompanied by the Jequí or Jiquí, a conical crate of wild cane, bound with cipós two feet long, and attached to stakes (estacadas). The Grozeira is a system of thin poles, planted five to six feet apart, and connected by lianas, to which hooks and lines are fastened. The Chiqueiro or hog-stye is a tall roofless closet of cane, some two feet in diameter, and affixed to the bank: it has a perpendicular trap-door, which falls when the fish pulls at a corn-cob. Another self-acting machine, a favourite because a trouble-saver, is the "Linha douradeira," a hollow bamboo with cotton line, hook, and earth-worm (minhoca). The Giráo is a perch on four piles, often planted at the head of a sand bank, and the man who exerts himself upon it with his cana or rod must be hungry indeed. He will, however, find a single take sufficient for the day and its appetite, and the rest of the twenty-three hours and fifty-five minutes may

* "Of the long quarry;" it is said that white lime is here found. I shall mention only the principal Fazendas which struck my

attention; a complete list is given by M. Liais.

be expended in doing nothing. I can hardly persuade my crew to throw a hand-line overboard when we anchor; the pretence is that they have brought no hoe for digging out earthworms. But they can catch half-a-dozen sprat-like "piábas" or "piaus"* by heaving up a calabash full of water, and by throwing it upon the bank; or they can shoot a bird or rob a nest, which will do equally well for bait. A fish-gullet best fits the hook, and will not come off, but they do not approve of this "new-fangled fashion." Salt is here wanting, but sunshine is not, and two days will extract all moisture from the fish-meat when cut thin and hung in the air. For long journeys these can be fried and potted with vinegar and spices. The flavour is preserved by frying the game when quite fresh from the water; it can be "warmed up" when wanted; fish-soup is invaluable, but it requires too many ingredients for a traveller to succeed in making it enjoyable. As a rule the people reject the scaly fish, because they say the spines are dangerous.

Those who visit these streams should be provided with fishing tackle, with the largest fresh-water hooks, and with the stoutest running gear, or the "cats," sometimes weighing upwards of a hundred pounds, will surprise them. On the other hand guns are useless. The crew generally carry their shooting irons, the locks guarded as in Africa by a sheath of monkey's skin; but little game appears upon the banks; it was confined to a water-hog, a single small deer, doves, and at rare intervals, a few Penelopes. Wild fowl, especially ducks (Marecas, called by the aborigines Jerere or Ierêrê), were sometimes seen, and cranes were heard screaming from the bayous within the River Valley; to get at these places, however, requires much marsh-walking and nothing else to do. In the Brazil those streams which, like the Tiété and the Paranápanéma of the São Paulo Province, ignore the white man, even the squatter, and can be reached only after a week of much travelling from the coast, afford magnificent sport; not so those where the gun is well known. Sportsmen

* The Piau is a small fish, which has given its name to the vast Province of Piauhy. Gardner mentions the Piau branco, one of the Salmonidæ, one to two feet long, with large scales. It is taken with the hook, and is held to be good eating. On the Rio das Velhas the bait is a bola of manioc flour. By night the Piau used to

jump into the tender canoe; the light slate-coloured back and white belly reminded my companion of the "silverside." We heard of the Piau certia, a large species, some white, others dark, and of the Piau de Capim, a sea-fish which feeds on grass.

visiting the Brazil will do well to bear this in mind; tapirs, ounces, and anacondas are still found near the sea-board, but they are exceedingly wild and troublesome to seek out, whilst the climate is bad and the walking is detestable.

Another hour carried us to the Port and Fazenda of the Capitão Frederico Dolabella, where we sighted the first cotton-plantation, and right well it looked. It is mostly herbaceous, the seed having lately been introduced; but still lingers the Brazilian "kidney-cotton." This, after some years, becomes a tree fifteen feet high, and thick as a man's leg, with large luxuriant foliage, red yellow blossoms, and bearing a strong medium-staple lint, that covers moderate-sized and naked black seeds. This is the "*Gossypium arboreum*," of which travellers in this Empire speak—the more exact limit the term to the "purple-blossomed, green-seeded, short-stapled, small cotton tree of India."* There is a mine of neglected wealth in cotton and fish, and the more we see of it the richer we shall find it. The hills were clothed with thin brown-grey grass, looking, in places, as if they were frosty with hoar, and they were profusely tasselled with noble Macahúbas or Coqueiro palms.

The snags and "branchers" were bad as those of yesterday, and we lost an hour by grounding at the Volta dos Pinhões, a "broad" and a bend in the river. Then we ran at the "Penedo," a tall fronting mass of bare stone, protruding from the trees which straggled over it from base to summit; a little below it was another hill, all forest, and between the two a pile of wood awaited the "barque." On the right was the Rio Vermelho, a little stream coming from the Arraial da Lapa, east of Sabará, and allowing unloaded canoes to ascend it for a league. † Presently another bend showed certain white lines between the river fringe of trees, and a hill fronting west; this was the "Macahúbas das Freiras"—of the Friaresses.

Before making fast to a "porto" or gap in the clay bank, here called a Port, I gave a passage across to a traveller from Lagôa Santa. He wore a cow-skin hat, shaped like the Petasos of

* So says Major R. Trevór Clarke. Here the cotton has more lint than usual; 1200 lbs. will give 500 lbs. of cleaned fibre, whereas in Alabama 1500 would be required. The people usually replant the shrub in its fourth year.

† Thus all my informants. M. Liais

calls it "Rio de Macahúbas," and makes it a stream of some consequence, with a contingent of 20 metres per second, which makes the Rio das Velhas of "great importance," and gives it a debit of 62 metres.

Mercury, a white shirt streaked with indigo—an old style still lingering—a paletot of Minas cotton, and deer-skin riding-boots built to reach the thighs, but falling below the calf as if he stood in his carpet bags. An impure path, winding past cascalho-heaps, by a dirty pond, and through offals of pig-sties, leads to the high site of the Recolhimento or Recluse House. On both sides of, and attached to, the church, are long double-storied wings of whitewashed pisé, based upon the usual fine blue limestone, and all the windows are jealously latticed and barred. To the left is the Vicar's house, and at a lower level rise clay and thatch huts, inhabited by slaves and porkers, fowls and turkeys. All appears exceedingly foul, but the people declare that with godliness, but without cleanliness, they live to a great age.

As there was no Venda we went to the Tropeiro's Ranch, and were surlily received by the housekeeper. This chattel of the "Recolhimento" was making pots, of course without wheel, out of a grey, iron-coloured clay; she refused to give coffee before we declared our names. Such is the effect of a single party of highly Protestant emigrants visiting so highly Catholic a place. I at once sent my card and letter to the Rev. Padre Lana, whose first cousin had been so kind to me at Itacolumi of Ouro Preto. This amiable Mineiro, educated at the Caráça, at once called upon us, ordered dinner, and carried us off to see the lions.

The "Madre Regente," or Reverend Mother, rather a pretty person, received us at the door, kissed the Padre's hand, and led the way to the little college-chapel, white and gold with frescoed ceiling. We visited the dormitories, which had nothing new, and from the windows we could see the inner square, which may not be visited without an order from the Bishop and his coadjutors. The galleries are long; the rooms, large and airy, reminded me, in their roughness of unhewed beams, of a Goanese establishment which I described nearly a score of years ago. The lecture "sála" showed a black board for "cyphering," some old maps, and creditable specimens of caligraphy, embroidery, and artificial flowers. The Infirmary contained one sister and four invalid girls. The thirty-six reverend women are dressed in white veils, and petticoats with black scapulars in front, and over all a blue capa or cloak. The twenty-five edu-

candas or pupils followed giggling in the steps of Galatea, concerning whom it is written,

Et fugit ad salices, sed se cupit ante videri.

The grounds consist of six acres walled in, and producing an abundance of well-watered "green meat;" here, however, the brown scummy river, ugly to look at but tasteless, is generally used; indeed, below Jaguára the people prefer it to that of the Córregos. The vegetables, especially the salad, are excellent; the vine, which at Sabará as at Barbacena bears fruit twice a year, is a failure. For the first time in the Brazil I saw the Coqueiro palm (*Cocos butyracea*) not wholly neglected; the fruit-pulp makes good tallow for lamps, and the kernel gives a medicinal oil;* besides which the "cabbage" is by no means despicable.

We then visited the church N^a S^a da Conceição, and found the Santissimo exposed and the nuns singing behind the grated choir-cage, which, as usual, fronts the Seat of Honour or High Altar. At the "Speak-House," where a grille allowed us to address the unseen inmates, and where an upright barrel with a stave or two knocked out, pivots in and out their humble wants, we were allowed to take the *Livro das Entradas*; it begins with an interesting paper dated July 18, 173-. After collating it with the *Claustro Franciscano* (Frei Apollinario, Lisboa Occidental, MDCCXL.), and lastly with the *Relatorio* of the Vice-Director General, the Chantre José Ribeiro Bhering (Ouro Preto, 1852), I compiled the following account of the oldest religious house in Minas.

About 1710 two brothers, Manoel and Felis da Costa Soares, "godly men and of a goodly house"—in those days the "vulgar" colonist would hardly have dared to be better than his neighbours—came here from Pernambuco, in search of lands, bringing sisters, nieces, and a widowed daughter. On August 12, 1714, they began to build a secular house, which "had no meum and tuum." This "Convento Velho" lay south of the present site, and its ruins still show in the thin palmetum. Felis met on

* St. Hil. (I. ii. 378), says that this palm tree is very remarkable. "Car, s'il existe une foule de sémences oléagineuses, l'olivier est, à ma connaissance, le seul arbre dont le péricarpe ait été signalé

jusqu'ici comme fournissant de l'huile." Yet he must often have seen the *Elæis guineensis*, the Dendé of the Brazil, and perhaps he had eaten "palm-oil-chop."

the banks of the Rio das Velhas a hermit, habited in a garb then strange to him, but which he presently found to be that of "N^a S^a da Conceição de Monte Alegre;" the recluse mysteriously disappeared—perhaps, said Padre Lana, it was a vision—and the laic, being unmarried, resumed the garb minus only the hat. Thus arose in the "Sitio de Mocaúbas," the first convent of the Recolhidas, dedicated to the "Immaculate Mother of God." The "Seraphic Order," then in lusty youth, came to its aid, and soon raised for it by alms 60,000 crusados,—say £60,000 of this our day.

The Sister Catharina de Jesus became the first Reverend Mother—a fact about which there is some confusion in the *Livro das Entradas*—and died in 1717. She was followed by Felis on Oct. 11, 1737. The old convent suffered from a torrent, and the present building was completed Dec. 25, 1745. D. Fr. Manoel da Cruz made it a branch Third Order of St. Francis, and it became a Mosteiro on Sept. 23, 1789. According to the "Relatorio," a rule was given to it by Padre Antonio Affonso de Moraes Torres, Superior of the Caráça.*

The Recolhimento receives nothing from the Government, but, as will appear, much land has been left to it; it lives by agriculture and cattle breeding, and it no longer works the once rich mining estate. Of late years the revenues have been simplified by conversion into Government Bonds. Its object is to give the "usual instruction required by the mother of a family," and in 1851 a sister and a pupil were sent to learn, from the Sœurs of Marianna, a better system of instruction and house management. The hypercritical declare it to be a kind of "bush"-school, and the confessor had never heard of the Bull Unigenitus. The name of Professor Agassiz, who had been repeatedly quoted by every journal in the Empire, was utterly unknown to him. How many millions of men ignore, we may ask, such persons as Alexander, Cæsar, and Napoleon, the great Triad, the mighty Avatars of humanity?

Padre Lana accompanied us to the Venda, where we sat down to a long conversation. Here we found a weak old woman,

* Even until very lately, throughout the Brazil pious women have collected together in houses, and have cohabited for devotional purposes. The foreign ultra-montane priests, who are here flocking like eagles to

the battle-field, reprehended the harmless and often beneficial practice, and forced upon these sisterhoods the "rules" of Europe, which are often nothing else but a mere system of old Asiatic asceticism.

who had worked at the Morro Velho mine—the sisters will let, but will not sell their slaves. I asked her how she had been treated: “nunca apanhei”—“I never caught it” said the poor nanny-goat voice. We bade an unwilling adieu to the excellent Padre, who complained that I was paying him a “visita de Medico,” in the Brazil not so complimentary as our “angels’ visits.” Mr. Hock, who complained that he had been stiffly treated by a former vicar, that found him to be a “herege,” asked me, with Ay-merican gravity, if I really thought that the “sisters” were chaste; it is curious to see how these men, so jealous of their countrywomen’s honour, find “libertinism” everywhere. “What a sad (triste) race they seem to be,” quoth Padre Lana on his side, as he looked at the old man champing in melancholy silence, behind his thin drawn-down lips, a huge quid.

The moon and stars were unusually bright, and the night was delightfully clear and cool. Before dawn in the next morning I was aroused by the moan of the dove and the small piping of the Saracúra—commonly called the Saracúla (Mr. Bates Serracúra, *Gallinula Cayennensis*)—crane, that useful enemy of cockroaches; the cry of the Siriéma or serpent bird, which resembles the whining of pups, and the gabbling of bubbly-jocks mingled curiously. Land and water were obscured by a thick white fog,* but the Eliza was not a Rhine steamer to be stopped by it. The pilots consider it a sign of a still day, and presently it lifted, showing a wondrously high vault, stretched with cirrus in long curved brushes.†

Friday, August 9.—We set out at 7 A.M., and presently ran down to “Coqueiros,” a fine site for a house, a dwarf level at the mouth of a gap between two hills, one grassy, the other feathered and forested with palms. To-day the effect of a large affluent appears in reaches somewhat longer, there is less of dead drift-wood lining the banks, and the bed now begins to show “Remansos,” still places in deep pools. We grounded but three times, and only once our men were obliged to “tumble in.” The stream is admirably embanked, the bottoms are more extensive, while the lands, higher and drier, are of superior

* Popularly known as Neblina or Noroega; this latter is probably an imported word, often applied to a dark place where the sun

is little seen, e. g. “Catas Altas de Noroega.”

† Generally known as Rabo de Gallo—cock’s tail.

quality and less desert. Women washing upon the margin no longer ran away unless we disembarked, and some asked with a scream if we were making a "planta" (map). The negroes were loading corn-cobs upon carts with plank floors, fenced round the top with square wattles four feet high; sometimes this woven work sloped backwards from a high front, like the classical biga and the car of triumph. There is a scarcely perceptible rapid called "das Alprecatas,"* near the mouth of the Upper Ribeirão de Taquarussú, whose yellow and shallow waters head some eight leagues away. Near this place are settled a Mr. and Mrs. John Wood, whom I failed to find.

Near the Taquarussú affluent the bed, which has formed a neck, narrows, leaving a broad sandbank to the west; this increases the swiftness of the stream from two to four knots,† and the sharp turn and shallow water make the boatmen rejoice when they have passed it. Huge blocks of stratified sandstone (lapa) are tilted up at a shallow angle towards the river, forming gloomy caverns, recesses and natural piers, which continue till near the ruinous "Fazenda do Mandim"—of the Mandim or Snorter.‡ The last time that I heard the song of the fish was in the port of S. Paulo de Loanda.

Then the hills fall, and the low cultivable sides are those of an English water, whilst Campo-ground appears in the distance ahead. Fields of the liveliest colour, telling the richness of the sugar-cane, contrast with the darker greens and wintry browns; the Ubá§ or arrow-reed, with lanceolate fan-shaped leaves and whitish flowers, here grows twenty feet high, and forms impene-

* The Alparcátas or Alpargútas sandals.

† M. Liaís calls the large sand-bar above the Taquarassu "Proa-Grande," doubtless a misprint for Corôa-Grande.

‡ The Mandim (M. Liaís writes Mandin), called Roncador or Snorter, from its grunting noise, especially in the hot afternoons before rain, was known to the Tupys as Mandué or Mandubé. Some of the pilots declare that the noise is produced by friction of the head upon the canoe bottom. It is one of the Siluridæ, and resembles the Mississippi "cat." The usual length is from 18 inches to 2 feet, the yellow-brown skin, with dark round spots, is scaleless, the long barbels give it the Anglo-American name, and the three dorsal fins are dangerous. It keeps near the bottom, bites voraciously, and, as it has few bones,

the white meat is tolerable eating, at least the otters find it so. There are many varieties: Mandim-assu; M. Amarello; M. Armado; M. Capadelho; M. Esquentado, &c., and M. Halfeld remarks (Rel. 215) that "all these qualities are diminishing." "Roncador" is the name given to several fish, especially on the south of the Villa da Vittoria. (Prince Max. ii. 157.)

§ *Gynerium parvifolium*, Mart., *Vubá* or *Arundo sagittaria* (because the Indians used it) of the System, and *Saccharum Ubá* of St. Hil., who (III. i. 18) says that Lucecock is wrong to write "Uva." Yet *Uvá* is preferred by old authors. In S. Paulo it is called *Ubá*, from the Tupy *uy'bá*, an arrow. The Mineiros know it as "canna brava," or wild sugar-cane.

trable thickets. This Calamus seems almost independent of climate, and enjoys the coast-levels as well as the Highlands of the Brazil. Another narrow, where the drift-sticks hanging to the trees mark a flood rise of at least fourteen feet, leads to the first of the curious formations called "Lapa de Stalactite." Here the limestone rocks on the left were hung in front with long tongue-shaped lappets of thin stone, which have a strange effect.

The next interesting point is the Ponte de Dona Ignacia. Since M. Liáis wrote, the tall weed-grown bridge has opened a central gap of 30 feet, and people cross by the normal ferry, an "ajôjo" of four canoes, with railed platform, worked by a chain and pulley. Opposite the large white Fazenda and distillery, now belonging to Lieut.-Col. Luiz Nogueira Barbosa da Silva, was wrecked the first steamer that appeared upon these waters, or indeed upon any of the island lines of the Brazil. M. William Kopke,* who came out as interpreter to the Cocaes Gold Mining Company, and who obtained a concession to navigate by steam the Rio de São Francisco, had the energy and enterprise to build her at Sabará in 1833-4. Like Captain Fitzgerald, of Larkhana in Sindh—who, by-the-bye, blew himself up—M. Kopke was obliged to make the greater part of his own engine, and sometimes to use wood where metal was wanted. The experiment was so far successful, but no farther—the steamer here went down "snagged."

On the right bank, a little below this place, is an Olho de Agua, or pool, which they say communicates by a "sinker,"† with a lake on the other side of the river. Bits of wood have been thrown in and have been recognized on re-appearance; of course these natural tunnels are possible in a limestone country. Presently

* M. Kopke (or Kopque?) whom the decree calls "negociante Hamburguese," losing his steamer, rigged up a boat and visited the Paracatú River. His brother, Dr. Henry Kopke, is still at Petropolis. After the first concessionist, whose permission to navigate the Rio des Velhas was decreed Aug. 26, 1834, and was extended to the São Francisco November 14, 1834, M. Tarte, a Belgian engineer, applied for the same exclusive privilege, but did not obtain it.

The first steam-ship that ever plied in the Brazil was built in 1819 at Bahia, by Sr. Felisberto Gomes Caldeira Brant Pontes,

afterwards Marquess of Barbacena. She ran to the then Villa of Cachoeira, and was wrecked by a storm upon the Monserrato beach. In 1822 a steamer was sent from Rio de Janeiro to Santos, carrying a deputation of distinguished men, and the Desembargador João Evangelista de Faria Souza Lobato. They persuaded the patriotic José Bonifacio de Andrada e Silva to accompany them, and returned to the capital on January 16, 1822, a week after the Prince Regent had declared that he would not leave the Brazil.

† Popularly called the "Sumidouro."

the sun set, the cold made us gather round the galley-fire, and the moon rose with low, uncertain light. The crew, not having seen the bed during the last four years, became very nervous as we swung round the Cachoeira de Jacú, with its swift deep current impinging upon the right bank of the narrow bed. I felt that a stick or a stone might spoil my whole journey, and I allowed them to make fast at the "Porto do Bebedor."* We scrambled up the steep bank to the house of Sr. Antonio Lourenço, and were admitted to the strangers' room, as soon as the key would turn, by the daughter of the house. D. Conrada, still in her teens, was the mother of three children and the widow of a tropeiro: she made coffee, warmed our beef, and sat chatting with us till we slept—a rare and recordable incident of hodiernal Brazilian travel in the Far West.

August 10.—The morning was mistless, and we set off early. After nearly two hours we saw on the left bank a large and much decayed square of white-washed and red-tiled building, backed by a neat church—the Fazenda de Jaguára.† At the "port"

* The "drinker;" a drain, not a drainer.

† Some explain Jaguára to be the name of the well-known ounce—puma or S. American lion. Others explain it by Jahú or Jaú-guára. The "Jahu-fish (is here) abundant."

Jaguára, corrupted Jaguar, Iagoar, and so forth, is properly "Ja," we, us, and "guara," an eater, a devourer (of us), and was applied by the indigenes to all man-eating beasts. Doubtless in the early days of colonisation, when these large cats knew nothing of the gun, they were dangerous enough. At present their courage seems to have cooled, and the Matador de Onças—tueur d'onces—once so celebrated in the Brazil, finds a large slice of his occupation gone. Many travellers have seen nothing of this king of the cats, except the places where it sharpens its claws. I have had experience of one live specimen, and that too by night. The people still fear them, especially at night, and have many traditional tales of their misdeeds. They are still very dangerous to dogs, monkeys, after which they climb, to the Capyvara, an especial favourite, and to the young of black cattle. There are four large varieties of these Felidæ:

1. The Onça çuçaranna, or çuçarana, (Mr. Bates "Sassú-arána, or the false deer"), whence the barbarously corrupted "Cougouar," derived through the "Gua-

zouara" of Azara. It is variously termed Felis Onça, or brasiliensis, or concolor, the last term being the best name. It is one of the biggest. I have seen a brown-red skin 5ft. 8in. long, not including the tail, yet it is the least dangerous. The range of this puma, or red lion, appears to extend throughout the tropical and temperate zones of the New World. It is evidently the "painter" (panther) of the United States.

2. Cangouassú or Cangussú, the largest variety, with smaller rounded spots of a lighter colour, on a dark brown-red skin. Prince Max. informs us (iii. 138) that in Bahia it is applied to a small animal whose pelage is marked with small blacker spots.

3. The Onça pintada (painted ounce), also called the Jaguarété (true or great eater). This "Felis discolor" is a very beautiful animal, especially when the white field of its maculæ has a light pink blush. In shape much resembling the "cheetah," or hunting leopard of Hindostan, it is the most dreaded; it does great damage to cattle; it worries and destroys far more than it needs, and after gorging itself with blood, it returns at leisure to eat the flesh.

4. The "Tigre," or Onça Preta, is the black Jaguar, a rare animal now in the Brazil, but still found, I am told, on the banks of the Upper Paraguay River. As a variety it probably resembles the black

where the Ribeirão de Jaguára falls in, I was met by Dr. Quintiliano José da Silva, ex-President of Minas, and now here officially as Treasury Judge (Juiz dos Feitos da Fazenda Nacional). He led me up to the house, introduced me to the mistress, D. Francisca dos Santos Dumont, the daughter of our host at Ouro Preto, showed me to the strangers' room, and lavished all the hospitable attentions in which his countrymen are such adepts.

leopard of the Niger Valley; and the dark spots upon a sable skin render it peculiarly interesting.

I have seen good collections of these skins on the Rio das Velhas. Here, however, as elsewhere, they are expensive, and are soon bought up for local use. All classes covet them for saddle-cloths, pistol holsters, tra-

velling bags, and even hunting caps. Of course the spotted ounce is preferred; and, as a rule, the skins are as thoroughly spoiled as if they had been handled by negroes. They are ruthlessly deprived of head, legs, and often of tail. *En revanche* the leather is well and carefully tanned.

CHAPTER III.

AT JAGUÁRA.

RIDES ABOUT THE PLACE.—THE VEGETATION.—EXCURSION TO LAGÓA SANTA.
DR. LUND.—M. FOURREAU.—WHAT THE WORD “CACHOEIRA” MEANS.

A distant dearness in the hill,
A secret sweetness in the stream.

Canning.

At this hospitable house I spent five pleasant days, whilst another crew was being engaged, and arrangements for my reaching Diamantina were being completed. “Jaguára” has, in its day, caused no little sensation in the Province, and the following are the heads of information touching the “*extincto vinculo*”—the “cut-off entail.”

Half a century ago, a certain Colonel Antonio de Abréu Guimarães amassed a large fortune with 750 slaves, and still more by forgetting to pay the Government dues on diamonds exported from Diamantina and other places. He held an enormous property of 36 square leagues (427,504 acres), which was afterwards divided into seven great estates. The first was Jaguára, containing 1000 alqueires, (each 6 × 2 square acres): this was lately bought, without the 200 slaves, by M. Dumont’s father-in-law, for 12 contos, 1200*l.* The next was the Mocambo, actually belonging to Colonel Francisco de Paulo Fonseca Vianna. Then came the Bebida, including Casa Branca, Saco das Egoas, and Saco da Vida. It once contained four square leagues, now it is reduced to 1300 or 1350 alqueires, and it is to be sold for 3000*l.*—30,000*l.* with a total of 170 slaves:—we shall visit it down stream. Number 4 was the Riacho of João Paulo Cotta; then ranked the Pindahyba, now Ponte Nova, including the Tabóca, formerly the property of Antonio José Lobo and Domingo José Lobo, nephews of the Abréu, and afterwards purchased by Colonel Domingo Diniz Couto. No. 6 was the Brejo of Francisco Fernandez

Machado and his brother; and lastly, the "Mello" was the nucleus of the estate.

The old contrabandist, who had also farmed with exceptional success the ruinous royal tithes, presently went to Lisbon, repented him of his sins, and was ordered by his confessor to build a church to N^a S^a da Conceição; furthermore, by way of fire-escape, he was directed to tie up (vincular) the greater part of his enormous estate for the benefit of religious houses. He wrote from Portugal to his brother, Francisco Martins de Abrêu, with all directions to carry out his orders, and the latter, much against his will, was compelled to sign all necessary documents by the authorities of Sabará, who met him, they say, on the road, and led him into an adjoining cave. The old man died in the Convento da Cartuxa at Lisbon, some declare miserably poor, others represent in miserly wealth, of which he had dropped but a small portion.

The revenue of this vast estate was divided into five portions, of which three were made over to the Misericórdia of Sabará, one was given to the Recolhimento of Macahúbas, and the fifth part was distributed amongst the relations of the mortgager, the families of Abrêu and Lobo. The Governmental administration was placed under a Junta, or Commission, who levied the rents, and paid them through the Juiz dos Feitos Provincial, into the Provincial Treasury. It is needless to say that the revenue declined; it gradually fell to 4\$800 per annum. Decree No. 306, of Oct. 14, 1843, "extinguished" the mortgage, and permitted the sale of the property. Since that time it has fetched, they tell me, some 40,000*l*. The seventh estate, called the Mello, is still being surveyed for sale,* and this accounts for the presence of the high officials at Jaguára.

Dr. Quintiliano kindly rode with me about the estate. There is a garden close to the stream, on a fine ledge of rich, red-brown clay (maçapê), which might be extended for many acres. My companion was emphatic upon the immense fertility and salubrity of the place,† and truly, as the spring was setting in,

* The Mello contained 63 sesmarias (here generally half a square league). Of these 10 were measured in 1865; 38 in 1866; and 15 in 1867; leaving 63 for survey. It has been bought since I left the river by the Provincial Government for the benefit

of the American settlers.

† Another estate, Páo de Cheiro, some three leagues down the river, and belonging to 7 or 8 proprietors, is held to be a sanitarium.

and the birds were making love, and the trees were weaving their new coats of many colours, the microcosm looked enchanting. He showed me some dry sticks, which a few days before he had planted in the ground with ashes of decayed wood, and upon which he had turned a tiny stream: all had budded; the effect of the subjacent limestone, the finest natural manure. The tenements are in poor condition: the low, long walls, and the hollow squares suggest the "Hishán" of the Arabs; these, however, are white-washed and tiled. The out-houses are in a still more tattered state; the owner cares more for the exploitation of the Rio das Velhas * than for agriculture or horticulture. The only part tolerably well preserved is a detached building, the Casa da Junta, † where the Commissioners met; the little church had been lately repaired, but its congregation was mainly the "Sanharó," ‡ a fierce species of wasp, dangerous to other honey-makers.

Our next visit was to the lakelets and to the vast limestone formations on the north-west of the estate. We passed a red digging, an open cut from which much gold had been taken by the ancients. Thence we issued upon a prairie of "spotty soil," here rich and red, there white with gravel. No lack of good grazing ground, and the cattle on the estate had, I was told, been worth 4000*l.* The vegetation was that of the Campos about Barbacena, the trees were hard gnarled Barbatimão, Patáro, Geão de Gallo, Piquí, Tinguí, § and Sicupíra. Besides these, I remarked the Sambahyba (*Curatella Sambaiba*, also written *Sambaüva*), with valueless fruit, a rough leaf used for brushing cloth, and astringent bark, good for tanning and for dressing wounds; it has the effect of iodine in resolving chronic inflammations. Another common tree was the Cagaitéra (*Eugenia dysenterica*), an ugly name, but a pretty growth, with white flowers and milk-producing leafage: the Cagaita, or berry, is a strong drastic. Here grows

* I obtained a copy of a map survey of the Rio das Velhas by M. Henrique Dumont, dated October 1864. It agreed well with the labours of M. Liais.

† I found the Casa da Junta (B. P. 208° 80, therm. 72°) = 1807 feet above sea-level. Pelissier's aneroid gave (29·46, therm. 64°) = 543 feet. Mr. Gordon's observation (29·44, therm. 74°) = 553 feet. All these observations are curiously under-estimated. The river is here about 646 metres above sea-level (2120 feet), or 49 metres lower

than at Sabará.

‡ It resembles the *Pelopæus lunatus* described by Azara and Prince Max. (i. 139). The latter makes it attach its pyriform nest to trees as well as houses.

§ This must not be confounded with the Tingi, Tingy, Tinguí, or Tiniury da Praya, a kind of liana (*Jacquinia obovata*), which, like the *Paullinias*, is used for intoxicating fish. The branches are cut, bruised, tied in bundles, and thrown into water whose course has been arrested by a dam.

in abundance the stunted Acajú or Cajú, which we call Cashew (*Anacardium occidentale*, Linn.; *Cassuvium*, Jussieu): amongst the aborigines it was a growth of great importance,* they numbered their years by it, they kept the nuts to remind them of their age, and they made of it their most valued Cauim or wine. The Goanese extract from it a neat brandy; here it is mostly made into sherbets, and strangers have burnt their lips by eating the dark reniform kernel that grows outside: the bitter gum called by the Tupys Acajú-Cica (for "icica," resin), is used by bookbinders, and keeps off worms. In the lower sites there is a kind of salsaparilla (*Salsa do Campo* and *do Matto*), which appears on ant-hills under the trees. The root is large and white; the yellow being preferred in Europe and the United States; the people declare that it should be drunk with milk, to disguise its acidity, and use it much, but with care, avoiding it for instance in the middle of the day. The garden-grown salsaparilla is all cut at this season, and the shops here ask 2\$000 per lb. of the dry old twigs sent from Rio de Janeiro.

The only birds were the Siriéma,† that hunted the serpents from our path; its favourite "big brother" the Ema (ostrich) which never gave a shot under 200 yards, and the pretty little Tiribá paroquet, with cuneiform tail (*Psittacus cruentatus*, Mart.),‡ which shrieked as it passed us like an arrow. The "Campeiros," or herdsmen, wild as the Somal, were picturesque in their leather wide-awakes, sitting loosely upon ragged nags with wild equipments; huge spurs armed their naked heels, and the wooden box stirrups which the cistus renders necessary in Portuguese Algarves, defended their toes. They were wiry and well-grown men; here it is remarked that even the slave-boys

* They called "Acajú acai piracóbá" what the Brazilians term *Chuvas de Cajú*, which fall in August to September, and which injure the inflorescence of the *Anacardium*. Southey (i. 181) confounds the "Caju" with the "Auati" (*Olí moquilia*, a *Chrysobalan*), a "Madeira reservada," or hard-wood forest tree, of which there are many species, some bearing a fruit that yields an intoxicating drink.

The aborigines began their years with the heliacal rising of the Pleiades. Their months were called, like the moon, "Jacu," from "ya," we, or our, and "cy," mother. Like most savages, they had not learned to

convert the quarters into weeks.

† The *Cariama* of Maregraf. Prince Max. (iii. 115) describes it as an "oiseau défiant," but I have seen it tame enough, especially as the people do not molest it. It is easily domesticated. My friend Sr. Antonio da Lacerda, jun., of Bahia, has or had a specimen. It flies for short distances, the wings being feeble, the body heavy, and it may be run down where there are no trees.

‡ Described by Prince Max. (i. 103), who was reminded of the "Croupion" (*P. erythrogaster*) of the Berlin Museum.

who are mounted in early life, are much taller and stronger than those bred in the house. This may partly be owing to their abundant diet of milk and cheese, farinha, and sun-dried meat. Here and there were scattered the huts of "agregados," squatters who are permitted to live upon the Fazenda, but who do not acquire by residence any right to the soil.

The lakelets are of little importance: they are the Lagôa Seca, then dry; the Lagôa dos Porcos, where porkers are bred and cut up; the Lagôa de Dentro, which overflows, and leaves after retreat a thick, short-piled carpet of soft sweet grass, and the Lagôa de Aldêa, so called from an Indian settlement, which has now disappeared. These pools, fed by rain-drainage, and sometimes by springs, are scattered everywhere over the country: they are natural vivaria, producing in abundance the "Trahira" fish.*

Presently crossing a wave of ground, we entered a small Mata or patch of dwarf forest in the Bebida estate. The low-lying soil is fine, as we are told by the Mutámba or Motámba tree (*Guaxuma ulmifolia*),† which bears an emollient gelatino-saccharine fruit, and whose gum refines sugar. The leguminous Angico (*Acacia Angico*), delicately feathered, whose bark abounds in tannin, is also a good sign. My attention was called to the Maçela do Campo, whose yellow flowers, resembling immortelles, are used to stuff pillows; to the Fruta Cheirosa (one of the *Anacardiaceæ*), with a large "baga" or berry, now green and milky; and to the Almecegueira (*Icica* or *Icicariba Amyris*, Aublet), with sweet-smelling wood, and perfumed resin used for a variety of technologic purposes.‡

I could not but observe how abundant was the antefibrile element: the Formulary quotes 15 species, several of them resembling those of Peru. In the denser growths was the Quina

* Gardner writes Traíra (Prince Max. Traíra), and describes it as "rather slender." I found it short and thick, like a doubled John Dory. It extends all down the river, and has several varieties, Trahira-assú, T.-mirim, and so forth. The flesh is good, but too spiny to be eaten with pleasure. Its dark back, ugly mouth, and rat's teeth make the people call it Páu de Negro—negro wood—and refuse to touch it. The Trahira, like the Piabanha and the Piau, is commonly met with in the rivers that fall into the Atlantic Ocean.

† Mutámba is an Angola word; the

Tupys knew it as Bixuma.

‡ In Portuguese Almecega is gum mastic (*Amyris*); hence the Brazilian tree is named.

"A almecega que se usa no quebranto."

"The gum of mastic used for inner hurts," says the Caramurí (7, 51). On the coast it acts like pitch; and the aromatic balm is everywhere applied externally for internal injuries, as hernias, ruptures, and so forth. The word "Quebranto" classically means "fascinatio," the evil eye.

do Mato (*Chinchona Remigiana*); and with it the "Poor man's Quinine," a tree with bitter bark and sweet fruit, called by many names, Páu Pereira (*Geissospermum Vellozii*), Ubá-assú, Páu Forquilha, Páu de pente (comb-wood), Camará de bibro (for bobbins), Camará do Mato, Canudo Amargoso or Pinguaciba.* There is also an abundance of the Chá de Pedreste, or de frade (*Lantana Pseudo-thea*). The giants of the forest are there, especially the Jatobá† (*Hymenæa*, whose leaves are in pairs), which in August yields a wine, said to be very pectoral; it bears gum animé (*Jutay Cica*), a good pottery varnish, and a copal used by the Indians in making their labrets and other ornaments; the flowers are enjoyed by the deer, especially that called Mateiro, and the long chestnut-coloured pods that strew the ground supply a flour of insipid taste, which serves, however, in times of famine. The most beautiful growth is the Ipé Amarello, or Páu d'Arco, "bowdarque" (*Bois d'arc*, a *Bignonia*), a tall thin trunk, as yet without leaves, which will appear after inflorescence; its trumpet-shaped blossoms, in tufts of yellow gold, would make the laburnum look dull and pale.‡

Presently we came to the foot of the Pedreiras, where the land wants water, a fatal objection in the present state of things. This is a lump of naked, fine black-blue and stratified limestone, weathered so as to resemble basalt from afar: it runs from north to south, when it joins the forested Serra d'Aldêa, also a calcareous formation, large enough to supply the Province for centuries. The outcrop is marked with striæ and holes of dull, dead white, from which spring trees, and especially Cactus, whose figs

* System (p. 95-97). In the Campos are the several *Chinchonaceæ*, *Quina do Campo* (*C. Vellozii*?) with dark and spotted leaves, and a sweet fruit upon which birds feed. St. Hil. (III. i. 229) mentions a *Quina do Campo* or de Mendanha, which he found to be a *Strychnos Pseudo-quina*. The other common species is the *Quina da Serra* (*C. ferruginea*). Camará is the local name of a plant called in Portugal "Malmequer;" bibro (from "volvere") is "fusus."

† This fine feathery forest tree, which prefers the dry woodlands, has many other Tupy names, for instance, Jatahy (*Jutahí* and *Jutahí-Sica* (Mr. Bates, i. 83), *Jetahy*, *Jetaiba*, *Alati-timbaby*, *Jatai-uvá* (or *ubá*). According to Sr. J. de Alencar "Jatobá" is derived from *Jetahi*, the tree,

"oba," a leaf, and "a," augmentative, alluding to the dense and beautifully domed foliage. The bark was used to make the native "ubá," or coracle. The wine must be drawn before the young leaves appear.

‡ Of the *Bignonias* there are many kinds, e.g., *Ipeúna*, whose heart supplied the hardest and best material for bows; *Ipé-roxo* with mauve and purple blossoms; *Ipé-tabaco*, so called because the heart contains a fine powder of light green; the *Bignonia cordacea* (Sellow), with blossoms of tender yellow; *Ipé-branco*, with large white blossoms. On the coast the young foliage of brown and burnished tinge, curiously contrasting with its neighbours, is put forth in early spring, at the end of August. In these Highlands it is later.

are here appreciated. To the west of these "Bald Knobs," I was told, flows a broad stream, arising near the hill-summit, a common feature in Kentucky and other limestone countries. After running 300 yards it disappears into an underground passage, from which it presently emerges. My "American"* informant told me that it could work any amount of machinery. Hereabouts are caves which yield saltpetre, and where Dr. Lund made some of his greatest discoveries.

On our way back we passed by the Lagôa Grande, the largest of the pools; around it was a Campo Novo—a "new," that is a newly fired prairie; the bright green grass started up from between the stones, which are supposed to defend it by preserving the moisture. Here also were fair slopes of graceful rounded forms, where the plough can act perfectly. From the rising ground we saw to the north the long line of the Cipó Range, limestone forested with Mato Dentro. To the north-east was the box-like apex of the Serra do Baldim (pronounced Bardim), and to the south-south-east the quoin-shaped and cloud-crowned head of our old friend the Piedade near Cuiabá.

My next excursion was to the Lagôa Santa, in company with Sr. José Rodriguez Duarte, whose amiable family we had met at Ouro Preto. The path was southerly, hugging the left bank of the Old Squaws' River. From the uplands before 8 A.M., the Valley appeared a serpentine of dense white mist, clinging to and curling up along the wooded bed: a suggestive spectacle, which never loses its interest. Presently we passed the rich fish-pool, Lagôa do Córrego Seco; its village of four houses boasted of an Inspeitor de Quarterão, the humblest of police authorities, facetiously called Juiz de Paz. After a total of an hour we crossed the southern limit of the Jaguára estate, and at six miles for head-quarters we sighted the "Sumidouro" or Sinkers. † This pool is said to be connected by a tunnel with the Olho de Agua on the right bank. To the west lay the village, lazily creeping up the wild slope, and much resembling a scatter of termitaria.

* Americano in the Brazil always means a citizen of the United States.

† The place alluded to by Southey, iii. 48. "From his (Fernando Diaz) head quarters at the Sumidouro (or Swallow, as those places are called where a river sinks

into a subterraneous channel) he explored the Serra of Sabara Bussu." The feature reminds us of the subterranean river which is supposed to run under the good city of Tours.

The next feature was the "Quinta do Sumidouro," a one-streeted village with a brand-new chapel, N^a S^a do Rosario; it is mainly the work of an Italian, the Rev. Padre Rafaele Speranza, who, if half the tales told about him are half true, has been left to live by a kind of miracle. Here men still remember a tragical episode in the eventful career of Fernando Dias Paes Leme, one of the most adventurous of the Paulista explorers. He was then seeking for "green stones" or emeralds, near a pestilential water known as the Vepabussú or Great Lake, and the hardships caused many of his Red-skin auxiliaries to revolt. They were prompted by one of his illegitimate sons, to whom he was greatly attached. When the mutiny was quelled, the father took the first opportunity of asking the youth what penalty was deserved by a man who had dared to rebel against the king's majesty.

"He should be hanged," said the son.

"Thou hast pronounced thy own doom!" replied the father, who, stern as the first consul of Rome, ordered the sentence at once to be carried into effect.* The old man died a few days afterwards, "Vnhouzzled, disappointed, vnnaneld," on his way from the Lagôa Santa to Sabará.

Sr. Leite, an intelligent store-keeper at the Quinta, which is about half a mile from the River, assured me that the ground had lately been subject to shocks, which were most frequent about full moon; he seemed to fear for it the fate of Mendonça. In this limestone region I could detect no sign of igneous action, plutonic or volcanic; but the earthquake at Alexandria, and another which I witnessed at Accra on the Gold Coast, prove that sedimentary formations are by no means exempt from the visitations of Ennosigæus.

The rest of the road was over wild and picturesque Campo, where the bright little Ribeirão Jacques will some day be valuable. Presently, after 3^{hrs} 30^m = 12 miles, topping a long hill, we saw below us a shallow basin, with a church and a scatter of white and brown houses—the town of Lagôa Santa. The streets were formed by the "compound" walls: tile-coped, and protected by a few inches of taipá or pisé, resting on a layer

* Southey (iii. 49) recounts the story nearly in the same words. St. Hil. (I. ii. 189) places the scene of the "Octagenarian's" adventure in the Province of Porto Seguro,

and declares that the "Vupabussú" was afterwards called "Lagôa Encantada," because it could not be found.

of rushes, which projects on both sides and defends the lower part of the perpendicular mud. We rode up to the square, "Praça de N^a S^a da Saude, so called from the Matriz, to the east of which is a fine fig-tree being rapidly devoured by the "Bird Herb" (a Polygonea?). The place, now so quiet and sleepy, has seen wild times. Successful at Queluz (July 27, 1842), the insurgents retired to the Capão de Lana, and, after a week, when the "Oligarchy" rendered this position untenable, they retreated and entrenched themselves in the Arraial da Lagôa Santa. An ambushade of forty men wounded the loyalist colonel, Manuel Antonio Pacheco, afterwards Barão de Sabará, and repulsed his 750 men. The attack was renewed, the Revolutionists fought stoutly, and an aunt of Adrianno José de Moura assisted them by serving out ammunition; on the 6th August, however, they were obliged to take to the bush. The conduct of the late Baron was praised, even by his enemies; he was one of few who treated the captured with kindness.

We rode up to some horse-posts (estácas) opposite a door, over which was inscribed F. F., and, having heard of a French hotel, we knocked. The house was opened by a very English-looking dame, who proved to have been born at Malta; we asked to see M. François Fourreau, and we were told to dismount. After shaking hands and exchanging salutations in the "language of Racine and Corneille," we ordered breakfast unceremoniously enough; the host joined us, and we enjoyed an excellent soupe and bouilli, not often eaten outside French walls. An old sous-officier of the 16^me Léger, he had been taken prisoner in the Russian Campaign, and the result was that he, a très joli garçon, set up a circus, and had travelled all about Western Asia. His three stalwart sons, including "Bibi," were still conducting the business at Diamantina; his daughter, a pretty ecuyère and married, as "Pedrinho" proved, lived with her parents. The good old soldier had bought considerable property at Lagôa Santa, he lusted to escape from it, but he did not see the way out. He was by no means one of that wretched race, which belongs to France or to England, not to the world. We passed the night with wine and jollity, and when I suggested the "addition," M. Fourreau laughed in my face. I am sorry to say that Madame did likewise; yet I left them with regret.

On arrival we sent our cards to Dr. Lund, the illustrious

Dane, the hermit of science, who had spent a portion of his life in the bone-caves of Minas Geraes. I was most anxious to ask him about the "fossil man," or "sub-fossil man," as opposed to the "primeval" or "prehistoric man." The term has been prematurely decided to be "a misnomer, since the thing so designated is of all things the most desired, the most sought after, but perhaps the least likely to be found." Still the influence of Cuvier! I was also desirous to know if the incisor teeth of the fossils had naturally oval upper surfaces (not worn down), and of longer antero-posterior diameter than transverse. Dr. Lund has for years been prevented by consumptive tendencies from living out of the Brazil; he has bought a house in the square of Lagôa Santa, and, as might be expected, he has become bed-ridden by rheumatism. He is said to live chiefly on Caparosa-ptisane,* which combines theine with caffeine. We perforce accredit others with our own feelings, and I felt sad when picturing to myself the fate of so great a traveller, doomed to end his days without a relation by his side, in the social gloom of this gorgeous wilderness. M. Fred. Wm. Behrens, the savan's obliging secretary, came over with many excuses and prayers that we would wait till the next morning. We did so, but without success. I suspect that our failure was caused by the nervous fear of strangers, which often affects even strong men after a long residence in the Brazil, and indeed in the Tropics generally.

Having heard many curious lake tales † about what proved to be on inspection a vulgar feature, I spoke to M. Behrens, who led me to his employer's lust-haus on the holy lake, launched

* "Caparosa" is primarily our copperas (sulphate of iron), also applied to verdigris, and the shrubby tree got the name on account of the tender blue-green leaf. It is known at once by the cut or torn part of the twig turning dark and tarnished. According to the System it contains tannic acid with a solution of iron, which may be made into ink, and which supplies a black dye. The abuse of its ptisane has, I was told, been already fatal to some who have followed the example of Dr. Lund. The celebrated Paullinia Sorbites, better known as Guaraná (from the Tupy Guarana-uva) also combines theine and caffeine.

† These lake superstitions are common in the Brazil. La Condamine, Humboldt, and others speak of the Lagôa Dourada. Henderson mentions that of the Lagôa Feia.

Prince Max. records the fables of the Taïpe, and heard of other traditions on the banks of the Rio dos Ilheos and the Mueury. The Parimá or Parimó Lake of Guiana is equally rich in legends. Connected with lakes of golden sands was the city of Beni, Grão Pará, Grão Pairiri or Paititi, alias El Dorado, whose streets were paved with the precious metal, and where the Emperor of the Musus, the great Paititi or gilded king of the Spaniards, was smeared with oil as he rose in the morning, and covered with gold dust blown at him by his courtiers through long reeds. Castelnau (vol. vi. 41) relates those of the Boldivian "Opabusú." This word, like Southey's Vepabussú, is a corruption of Ypabussú, ypaba in the Lingua Brasilica meaning a lake.

the boat, and struck out with the paddle. The piles and poles which have been said to denote pfalbauten or crannoges, were probably an old palisading now flooded. The length is about one and a half miles from south-west to north-east bending east, where a sangrador or drain, some eight to nine miles long, discharges it into the Rio das Velhas, near the Fazenda called of Dona Ignacia.* The southern side had greatly shrunk, and we saw at once what causes the "bubbling surface." Here, during the rains, is a Cabeceira or head stream, one of the many feeders from the basin-sides, which gently rise to grassy Campo ground. On the opposite margin of the little reservoir rises a pretty bit of cockney forest, which has been pierced with toy paths. The lake is said to be filling up, and the greatest depth in the centre is three fathoms. The sides are overgrown with a fine pithy rush (junco), of which mats are made; this is one of the local industries; the others are fishing and rude pottery, glazed with yellow and green. The poor almost live upon the Trahira, the Curumatão, † and the dreadful Piranha. ‡ The vegetation around is stunted; we are still in the lands of the plantain and the pine, but the Araucaria is short and ricketty, evidently finding the air too hot to breathe. §

The Holy Lake was originally called Ypabussú (Vupubussu), or Lagôa Grande; it owes its pretentious name to superstitions

* Mr. Gerber's map makes it heart-shaped, lying north and south, with the apex to the south, and he drains it by a greatly exaggerated "Rio Fidalgo." The latter is the name of an estate belonging to the heirs of the late Cirurgião Mór, Serafim Moreira de Carvalho.

† The name of this fish, one of the Salmonidæ, is variously written by authors. Prince Max., Crumatam; Pizarro, Corimata and Curmatan; St. Hil., also Curmatan; Gardner, Curumatám; Halfeld, Cumatá or Curimatá, and the Almanak, Curumatá—the latter two neglecting the nasal sound which it certainly has. I hesitate whether to write Curumatão or Gurumatão, the first consonant being doubtfully sounded. This fish is about two feet long; it leaps like our salmon, with its silvery scales glancing in the sun, and it must be caught in drag-nets, as it will not bite at bait. There is also a salt-water fish of this name, soft and full of spines. The savages shoot it with arrows (Prince Max. ii. 137), Mr. Bates (ii. 140), "Caught with hook and line, baited with pieces of banana, several Curimatá

(Anodus amazonum), a most delicious fish, which, next to the Tucumaré and the Pescada, is most esteemed by the natives."

‡ The well-known Scissar fish, Piranha in Tupy meaning scissars. Our authors call it "devil fish." Cuvier named it Serra Salmo Piraya, and unconsciously sanctioned the vulgar Mineiro and Paulista corruption of Piranha to Pirayya (so Canáyya for Canalha). The fish is common in the Upper Uruguay and the Paraguay, as well as in the São Francisco. Those that I saw were from one foot to eighteen inches long by about ten inches deep, flat but short and thick. The carnivorous fish swims vertically, and is supposed to turn on one side when it bites; the serrated teeth bend backwards; they easily tear off the flesh, and a shoal will, they say, in ten minutes reduce a bullock to a skeleton. I found the meat dry, full of spines, and with poor flavour. On the Lower São Francisco the people refuse to eat it.

§ The Lagôa Santa proved to be 2228 feet above sea-level (B. P. 205° 1, therm. 76°).

which have now died out. In ancient days people made of it a Pool of Bethesda, and a Dr. Cialli, in 1749, found that its waters contained medicinal properties. The tale which Henderson recounts about its surface being filmed over with a silvery pellicle like mercury, was unknown to all. They preserved, however, the tradition that, "once upon a time," a woman used to be seen hovering over the centre, whilst a silver cross arose from the depths. Many a hardy fellow, doubtless in a pitiable state of nervousness, paddled to make a prize of a precious metal, and was sunk by a mysterious whirlpool, when, as the Arabs say, he passed without loss of time from water to fire. The spirit was exorcised—a common process in Hibernian legends—by some holy man, whose name has fallen into unmerited forgetfulness. Similarly in the Manitoulin Islands of Lake Huron, the Manitou (popularly and erroneously translated "Great Spirit") forbade his children to seek for gold; the ore was supposed to be found in heaps, but no canoe could reach the spot before being overwhelmed by a tempest. All these have vanished:—

The intelligible forms of ancient poets.

Die alten Fabel-wesen sind nicht mehr.

and humanity is no longer sorely tempted upon the Holy Lake.

Disappointed, to Jaguára we returned, and I found it difficult to tear myself away from the pleasant society of my new friends, Dr. Quintiliano and Sr. Duarte. I little thought at the time that the latter was so near his end: he had been treated for ulceration of the leg; the wound was healed, but when he returned to Ouro Preto he died suddenly. Hospitality is the greatest delay in Brazilian travel. It is the old style of Colonial greeting; you may do what you like, you may stay for a month, but not for a day, and the churlish precepts and practices of Europe are unknown.* At length, however, I found a pilot, Chico (*i. e.*, Francisco) Diniz de Amorim, who had a farm near the Retiro das Freiras: he was described to me as very "fearful" (*medroso*), meaning skilful and prudent. The others were Joaquim, the son of Antonio Corrêa, overseer of Casa Branca: a useless shock-

* The Basque proverb says,—

Arraina eta arrosa
Heren egunac carazes, campora deragoza.

"Fish and guests after the third day stink, and must be cast out of the house."

head, unable to work. I presently bought for 40\$000, a kind of "Igára,"* a tender-canoe, and used to send him ahead to explore the Rapids. The third was João Pereira, of the Rio de Jaboticatúba, a freedman of the late Padre Antonio : he was the hardest worker of my five crews, but as fierce and full of fight as a thorough-bred mastiff. We got on well together ; I did not, however, engage him for the Rio de São Francisco, lest his readiness with his shooting-iron might get me into trouble. These men were to receive 5\$000 per diem, and 2\$000 whilst returning to their homes : they asked a couple of days to prepare, and they caused no unnecessary delay. Usually, every excuse is offered, the favourite one, both here, on the Rio de São Francisco, and on the Amazons, being that the wife is about to grow another olive branch.

As far as Jaguára, the River has shown us mere broken waters (Quebradas), tide-rips (Maretas), and runs, properly called "Correntezas," "Corradeiras," or "Corredeiras," and "pontas d'agua," when the stream swings swift around the points. The traveller, however, will hear them denominated Cachoeira,† a generic term, equally applied to the smallest ripple or Stromschnelle, caused by a sunken tree, and to the Paulo Affonso, King of Rapids. The word, therefore, will be used for convenience, without attaching to it any importance. To a certain extent it is correct, the difference of levels in most of the rapids is unimportant, and we shall not find a fall or drop (Salto) till we reach the São Francisco. The little perpendicular steps in the Cachoeira, or Correnteza, are called Corridas and Corredôças,‡ and especially occur in the scatters of rocks, known as 'Taipaba, a corruption of Itaipába.§ On the other hand, the "Canal" is the fair-way through the Cachoeira.

* This is the Tupy word from "yg," water, and "jara," lord. My "Lord of the Water" was of Mandim or Peroba wood, twenty-five feet long, with average breadth of nineteen inches. As usual here, and the same is the case on the Mississippi, in defiance of all the rules of displacement, the dug-out was made leek-shaped, bulging at the bows, with a head larger than the body, under the raftsmenlike idea that this facilitates progress. We can only compare them with the "plough bows" and the "short bluff ships" which are now figuring in our naval estimates.

† Also written Caxoeira, which has the

same pronunciation. The word corresponds in part with the Baudales of the Orinoco. In Tupy it is "aba-nbeendaba," which means equally a rapid (Cachoeira) or a cataract (Cascata or Catadupa). In parts of the Brazil, especially the Province of São Paulo, Cachoeira means a rivulet, without conveying the idea of rapids. Cachoeira is a classical Portuguese word, scil. Cachão-eira, a place abounding in "cachões," plural of cachão, derived by Constantio from Coctio, boiling (water).

‡ This is also a classical word, locally used in a limited sense.

§ The word is Tupy, "Ita-ípa" mean-

The Cachoeira proper is a place where the river skirts a hill, or breaks through a range which projects into it rocks that cause rapids. Generally it extends from one side to the other: its diminutive form is the "Camboinha," a "Carreira," or a "Corredor." The upper strata in the Rio das Velhas being mostly limestone, the obstruction is often a narrow wall of loose stuff (pedras movediças) through which a few Irishmen with picks would open a way in twenty-four hours; once opened, the water laden with sand and gravel would not allow it to close. Before this is attempted, I should advise, however, the use of the diving-bell, or helmet, in each deep pool (fundão) which precedes the break. These basins where the water slackens (remansós, poços, aguas paradas), and which lie close above the rapids, are in fact huge flumes and cradles where the gold* and diamonds washed down to the river-bed will be found to have settled, whilst the rock-bars crossing the stream must preserve the deposited matter from being swept away during the floods. In the Rio de São Francisco the Cachoeira is much more serious, because formed either of the hardest sandstone or of lumpy granite, whose crest numbers feet when here we have inches.

The Cachoeira, like the "Pongo," or "Mal Paso" of the Upper Amazon, is nearly always found at the mouth of a tributary, a river, or a córrego or stream which brings down mud, "creek-sand," and gravel. It causes inundations by arresting the flow, and these floods would be easily remedied, whilst the stream would not be injured by additional velocity. In rare places it may be necessary to canalize across a neck of ground, but the Brazil is not yet prepared for such expenses.† On the Rio das Velhas there are generally houses near the Cachoeiras, but, as a rule, in the dangerous parts the people know nothing of the river a league above or below their doors: they use canoes for fishing, crossing, and paying short visits, but they travel by the roads along the banks.‡

ing a stony reef. It is translated "Gur-gulho" or "Pedragulho," coarse gravel. Castelnau (i. 424 and elsewhere) mentions upon the Tocantins River the "Eutaípava," probably a peculiar way of spelling.

* Two attempts have been made to turn the bed of the Rio das Velhas; one was below Santa Lusía, and the other was above Jaguára. The success was partial, the precious metal was found in quantities,

but after an enormous expenditure of human labour, the floods came down and the stream returned violently to its old course. At present the people cannot reach the bottom of the bed, and coffer-dams, dragging machines, and diving bells are equally unknown to them.

† Upon this subject I shall offer some observations in Chapter 15.

‡ In the Brazil, as in British India,

The bad "Cachoeiras" on the Rio das Velhas number ten, and all will require more or less work before a tug can be employed upon the river. They are "wild rapids," Cachoeiras brabas (bravas), the others being "meia braba" and "mansa," or tame. There is no rule for passing them. Sometimes the raft must creep down the sides; at other times the pilot must make for the apex of the triangle, whose base is up-stream, and whose arms are formed by jumping water. In many of the tide-rips there is a double broken line, containing a space smooth as oil, which shows the deep bed. The rock or snag, on the other hand, is known by the triangular ripple, with the base down stream. The paddles should be taken in, and the raft must be pointed down with poles (*sobre vara*): if the men are lazy they will spare themselves this trouble, and they will probably come to grief. Where the current is very rapid, it is advisable to diminish the pace by dropping down stern foremost.* "Cordelling," stern foremost by a rope from the bows, is mostly confined to the tail-end of islands, where there is a gate in the rocks through which the raft that would otherwise be swept down by the current, must pass. Of course, the seasons make the greatest difference in the rapids; † some of them which are formidable during the floods, are safe when the dries set in. Generally they are most dreaded in the winter weather, when I passed them: during the inundations between December and March, a small steamer might pass over many of them without knowing that they are there. The boatmen swim like ducks, despite which many are drowned. A stranger without a life-belt would have little chance of escape; it is therefore advisable to prepare for accidents by attacking dangerous places *en chemise*.

water communication, which should have been first undertaken, has been left to the last. I shall have more to say upon this subject.

* Commonly called (*virar* or *deseida*) "de bunda," more prettily "de poppa;" opposed to the normal way "de bica" or

"de corrida."

† M. Liais was on the Rio das Velhas between April 10, 1862, and July 3, 1862. His head pilot was one Clemente Pereira of Tabatinga, in the *Vinculo do Mello*. Hence the names of the Cachoeiras, and other features, which are not all correct.

CHAPTER IV.

TO CASA BRANCA AND THE CACHOEIRA DA ONÇA.

THE COUNTRY HOUSE.—THE COUNTRY GENTLEMAN.—VISIT TO JEQUITIBA.—
UGLY RAPIDS.

O echo do Rio que o trovão simula,
E lento se prolonga reboando.

Domingos José Gonçalves de Magalhães.

FRIDAY, *August 16, 1867.*—After a week at Jaguára, I packed up my chattels by an effort of the will, and, accompanied to the “Porto” by my kind hosts, embarked. We parted with many hopes to meet again, and with long wavings of the hat: presently I found myself, once more, like *Violante* in the pantry—alone.

M. *Liais* records in May from Jaguára downwards, a constant depth of two metres, and no danger of grounding except from carelessness: this, however, was not my experience. During the ten miles of to-day there was little to observe. We passed the bar of the Rio Jaboticatúba,* and we shot through a broken bridge and by a ferry raft with chain and pulley, belonging to the Fazenda de Santa Anna of Sr. Antonio Martins de Almeida. After another bend we sighted on the left a square of white and brown houses with turreted entrance and private chapel. This place, the head-quarters of the Casa Branca estate, lies below a plantain-covered hill rising above the wild growth of the banks. The land is of rich limestone, with a wealth of water; is rich in cotton and sugar, maize and rice, haricots and the castor-plant; it breeds horses and mules, black cattle, and pigs; and on the river's banks large granular gold in rusty quartz looking like iron is still

* The name is that of a fruit, somewhat like the common Jaboticaba (*Eugenia Cauliflora*); but the tree is taller, the bark has a different appearance, and the berries do not grow so low along the trunk. Canoes ascend the stream for five leagues; it heads

in the Serra do Cipó, and is navigable for the smallest craft to the Ribeirão de Abaixo, distant some twelve leagues. Further down is the Córrego da Palma, whose bend, a little below the mouth, is called the Roto da Palma.

washed. The four square leagues may be bought for 300:000 \$ 000, or less.

A small party of Anglo-Americans met me on the bank and introduced me to the owner, Sr. Manoel Francisco (de Abrêu Guimarães). He was a fine, handsome, middle-aged man, Portuguese by birth; about eighteen years ago he inherited half the estate of his uncle, Major João Lopes de Abrêu. The manor house was in the normal style, fronted by a deep verandah, from which the owner can prospect the distillery, the mill, whose wheel informs us that sugar is the staple growth; and the other offices. At the end of the verandah is the Chapel of N^a S^a do Carmo, with her escutcheon of three gilt stars upon a wooden shield painted blue; here there is chaunting on Sunday evenings. The *Senzallas* or negro quarters are, as usual, ground-floor lodgings within the square, which is generally provided with a tall central wooden cross and a raised wooden stage for drying sugar and maize; the tenements are locked at night, and, in order to prevent disputes, the celibataires are separated from those of the married blacks. These *Fazendas* are isolated villages on a small scale. They supply the neighbourhood with its simple wants, dry beef, pork, and lard, flour of manioc and of maize,* sugar and spirits, tobacco and oil; coarse cloth and cotton thread; coffee, and various teas of Caparosa and orange-leaf. They import only iron to be turned into horse-shoes; salt, wine, and beer, cigars, butter, porcelain, drugs, and other "notions." There is generally a smithy, a carpenter's shed, a shoemaker's shop, a piggery, where during the last month the beasts are taken from the foulest food, and an ample poultry yard.

The life of the planter is easily told. He rises at dawn, and his

* "Farinha de Milho" should be steeped (molhado) for 24 hours; the manipulation is delicate, and especially the water must be flowing, or the flour turns sour, and acquires a nauseous taste (farinha podre). It is then pounded (socado) in the stamps (pilão) and sifted (penerado); the dough (massa) is toasted by slow degrees, otherwise it will be injured, in large pans of tile stone or metal (Fornos de cobre, &c.) fixed in masonry over the fire. Travellers have used these articles for drying skins and plants. This farinha is best when eaten with milk. The people ignore the corn bread of the United States. In making manioc-farinha, the bag in which the raw

raspings were strained (tapety or tapiti, in French colonies "la Couleuvre") is supplied by placing palm-leaves above and below the massa when in the press (prensa); the sediment of the juice that comes from the mass is called *tipioca* (our tapioca), and the liquid is thrown away. The Indians, like the Dahomans, prepared a much roasted and hard meal, which they called *ouy-entan*, and the Portuguese know as "Farinha de guerra" (Prince Max. i. 116). In the Brazilian forests there is a poisonous species called *mandioca brava*; in Europeans it produces fatal vomitings, but the wild people are said to eat it after keeping it for a day.

slave-valet brings him coffee and wash-hand basin with ewer, both of solid silver.* After strolling about the mill, which often begins work at 2 A.M., and riding over the estate to see that the hands are not idling, he returns between 9 and 11 with his family, and if a bachelor with his head men, to breakfast. The sunny hours are passed either in a siesta, aided by a glass of English ale—there is often nothing English in it but the name—in reading the newspapers, or in receiving visits. The dinner is between 3 P.M. and 4 P.M.—sometimes later; it is invariably followed by coffee and tobacco. Often there is another relay of coffee before sitting down to tea, biscuits and butter or conserves, and the day ends with chat in some cool place. The monotony of this *Vida de Frade*—Friar's life—is broken by an occasional visit to a neighbour, or to the nearest country town. Almost all are excellent sportsmen, good riders, and very fond of shooting and fishing. They are also doctors, great at administering salsaparilla and other simples, and at prescribing diet. In Gardner's time Buchan's "Domestic Medicine," translated into Portuguese, was the book; now the Formulary of Chernoviz must have made a little fortune; it is part of the furniture, as was "Guillim" in the country-houses of our grandfathers. Homœopathy † throughout the Brazil is in high favour, and generally preferred to the "old school" and the "regular mode of practice." The choice is the result, I presume, of easy action upon the high nervous temperament of the race, and the chemist who deals in the *similia similibus*, makes more money than his brother the allopath.

We will now visit the Engenho, or sugar-house, the simplest expression of a mill. In the more civilized establishments a light wheel works by a cogged axle, the two iron or iron-banded cylinders placed horizontally.‡ The old three perpendicular

* This is still the custom of Turkey, Egypt, and Persia. On the Rio das Velhas metal is preferred to the more frangible material; for everywhere in the Brazil negroes break whatever they handle.

† The establisher of homœopathy in the Brazil, who corresponds with Dr. Samuel Gregg in New England, was Dr. B. Mure, a Frenchman, a most active and energetic proselytiser, who worked the press with unwearied energy. "You and I are the only men who love homœopathy for its own

sake," Hahnemann said to him. He died I believe on the Red Sea, riding his favourite hobby-horse towards and for the benefit of India. The "Instituto Homeopatico do Brasil" published his "Pratica Elementar," and it has reached several editions.

‡ "Engenho de ferro deitado," opposed to the ancient system of upright cylinders called "Engenho de pau em pé." When not worked by a water-wheel, a long lever is carried round the walk by cattle.

rollers are waxing obsolete ; and a hopper sometimes protects in these days the slaves' hands from mutilation. There is an utter absence of European chemical science and of modern machinery: the vacuum-pan, the "subsider," and the "steam evaporator," are equally unknown. Even the simple use of bone black and lime, to remove the albumen and the acetic acid of the sugar, have not been adopted. The ripe stalk should be ground as soon as cut: it is often piled in the yard for days, and the accidental rents in the outside skin, hacked by the awkward black, acidify the juice by admitting the air. The caldo or garápa* is run right into the pans, which often are not thoroughly cleaned; it is slowly boiled down in coppers exposed to atmospheric action, and the laziness of the boilerman prevents his skimming the juice with care. Hence, in this Land of the Cane, those who prefer loaf sugar must send for it to Europe.†

The "American" party consisted of nine souls, including a wife and three young children, white-headed, blue-eyed, red-cheeked rogues, always blessed with health, restlessness, and accidents; they are extreme contrasts to the slow, dull, whity-browns of the land, and here the southern "cross" is uncommonly strong. They had been living for some four weeks in a house assigned by the host, and during that time their united

* The word is, I believe, Indian: it properly means Caouy, or wine of sugar-cane, or wild honey: and it extends far. It is simply the fresh cane-juice, which the people are fond of drinking after the Indian fashion, warm; to me it is much more agreeable cold. Garápa is a favourite beverage with Tropeiros, and it stands on the shelves of every Venda, together with Capillaire and other mixtures. For cattle, and especially for horses, it is an admirable fattening food.

† The following is the rude system in this part of the Brazil. The canes are ground by the rollers, and the juice (caldo or garápa, the Spanish huarapo) flows into the boiling coppers (caldeiras): of these there are usually three, worked by a single negro. The trash (bagaço, in French bagasse) is still rich: it is good for animals, especially pigs, it would supply fuel for a steam engine, and it is excellent manure, returning silic and saccharine matter to the soil. Now it is generally piled in a heap and left to decay. From the coppers the juice passes to the cooler (resfriadeira), where feculences and impurities subside,

and the "caldo" crystallizes. It is then placed in vats (formas) whose bottoms, half the breadth of the tops, are pierced with holes, and are provided with bungs. These troughs are covered with brick-clay, never animal charcoal: when the molasses (melado) has drained out, the sugar is dried in the open air, raked about by negro boys, and allowed to become thoroughly impure. Finally, it is stored in the sugar chamber (Caixaõ de assucar).

For distillation the molasses from the troughs is led by channels (bicas) to a large canoe-shaped wooden cistern (coche). It is then mixed with the scum from the boilers, and reduced to about 11° Reaumur, in the tank, for alcoholic fermentation (tanque de azedar). It is then carried to the still (alambique), an old-fashioned and rarely cleaned machine like a retort. This usually receives three feeds (alambicadas) in the twelve hours: work being rarely done at night. Finally the spirit is poured into a square wooden bin containing some 500 kegs: this "tanque de Restilo" when hollowed out of a single log is called "Paíol."

“venda bill,” food included, had been only 26\$000—say, 30*l.* per annum. A wonderful infirmity of purpose seemed to affect them; the only reasonable cause of delay was a wish to try the effect of a rainy season before squatting in the new Alabama. Some liked the place, because it is above the difficult rapids, and it is connected by land and water with Sabará the market, a *sine qua non* here. Others abused it; they held it unfit for the plough, and objected to the Brazilian style of spontaneous production, where the land is uncleaned, where the only implement is a bill-hook at the end of a long handle used to lop off the sprouts of the young wood springing from undecayed roots, and where gathering is the only work and care. They naturally enough objected to plant in the same field cotton and corn, beans and Palma-Christi, the sole rude succedaneum for a rotation of crops now known in the Brazil. The best lands are here sold at 15\$000—40\$000 per alqueire of 6 × 2 square acres, and large tracts may be purchased for much less. To work profitably, however, they require stock and fifteen black hands—the latter at present a very expensive article, ranging from 50*l.* to 100*l.* The production per acre is of cleaned cotton, one bale of 500 lbs., worth a minimum of 200\$000; 40 bushels of corn fetch from 40\$000 to 80\$000, and the same is the price of an equal quantity of beans and ricinus seed.* The acre also produces 100 lbs. of tobacco, worth 60\$000, and the price will be raised by proper treatment. Not being over-burdened with money, the colonists must rely mainly upon time-purchases. I heard afterwards that they had bought a raft, and descended the river to Trahiras. One of them, Mr. Davidson of Tennessee, volunteered to accompany me as adjutant-general; I liked the man, and gave him a passage to the Rapids of Paulo Affonso.

The host was a bachelor, and the evening of my arrival was ushered in by music and dancing; a “pagoda,” however, not a “fandango,” nor the peculiar Congo style of saltation known as the “batúque.” † I could not enjoy it, the sun had been overpowerful, and the breeze had been too cool: my principal sufferings were from cramps in the fingers, here, apparently, a common

* This mamona-oil sells at 1\$200 per alqueire—nearly 8 imperial gallons. The Southerners are familiar with the plant, but they rarely burn the oil, as is done in

this part of the Brazil.

† Not batucca, as it is written by Prince Max.

complaint. I had arrived on Friday, but the host would not give me leave to depart before Monday, and then, also, not till after breakfast. My raft was plentifully supplied by him with fine "Restilo," or rather "Lavado," whose exceeding strength provoked the wonder and admiration of the river. A single wine-glass of this spirit before turning-in, especially when the wind and rain rushed under the raft-awning, was a protection against ague. Thus, Peter Pindar:—

" Would you, my friend, the power of death defy?
Pray keep your inside wet, your outside dry."

I found also a six-months' provision of fine, white, clayed Rapaduras sugar bricks, 9 × 6 × 2 inches. Sr. Manoel Francisco accompanied me to the "Eliza," embraced me, and wished me the best of voyages; I parted from him with regret.

August 19.—After two hours we passed on the right bank the Paracátu influent,* a buttress of caverned rock ending a hill; it was the first of three picturesque cliffs composed of calcareous blocks, tufted with trees, and separated by shallow green hollows. In front the distances were charmingly painted by the pink-blue air of the Brazilian spring, which lasted us twenty-three days longer, till we reached the Rio Pardo; the gauzy, filmy sky blurred the outlines of the vegetation and rendered mirry the surface of the stream. The timber was small, the tallest growths being the Jatobá and the Angico Acacia; the most spreading was the Gamelleira or wild fig, that kindly gift of Nature, with dense, cool, dark-green foliage, and "beard of wood"† garnishing its widely-extending boughs. Clearings extended from the water to the hill-sides, making brown patches of dead vegetation; and oranges and bananas showed where the dwelling places lurk. There was the usual beautiful variety of hue and form, so attractive to all who have an "eye for trees." The mauve Quaresma, the chrysoprased of the young sugar, and the fan-shaped Arrow-cane (ubá),‡ here 14 to 15 feet high, tasselling the long, smooth reaches, and a hundred tints of leek-green, gold-green, dark-green, spinach-green, brown-green, pink-green, and red-green,

* This must not be confounded with the Paracátu influent of the true São Francisco. The word thus written means good (catu) stream (pará); others hold it to be a corruption of Pira-catu, good fish (pira or

pyra).

† Barba de Páu or Tillandsia.

‡ "Uira" is also in Tupy a shaft or arrow, and Uiraçaba, a quiver.

contrasted with the white flowerets of the Assa-peixe branco, with the silver-lined leaves of the Sloth-tree, and with the coppery foliage of the Copahyba.* Here rose a tall skeleton, blasted by lightning, or slain by the annual fires; there a nude form enjoyed the disrobing of the dry season before assuming the impermeable of the rains; there a panachéd palm rose bending and rustling in the wind. Now the trees shot boughs horizontally over the stream and curled up or put forth secondary branches towards the light; orchids were rare, but the lianas were as usual rampant, and pendulous birds'-nests occupied the best places. There half-cut trunks bent their heads into the water, whilst others, inclining down the river in the teeth of the wind, showed the force of the floods. Masses of vegetation rolled bulging down the bank. We especially remark the massive digitations of the Castor-plant, and the Tabóca Cabelluda (hairy bamboo), a graceful, maidenly shape, but armed with angry thorns cockspur-shaped, and disposed in threes. The Hibiscus, 10 to 12 feet high, here known as the Mangui or Mangue,† will long attract the eye by its yellow cotton-like blossoms, by the young cordiform leaves with velvety lustrous green, and by the dead infoliation washed with faint vermilion, looking from afar like spangles of red.

Below Paracatú is the Poço feio, or "ugly well," where a rock projecting from the left bank caused the little whirls and regurgitations here called, from their shapes, "panellas de agua," or water-pipkins. Three hours carried us down to Páu de Cheiro,‡ thus long had it taken to coast this part of our friend's grounds. The estate, belonging to half-a-dozen owners, is estimated at 200 alqueires, and may, they told us, be bought for 8 to 10 contos of reis. A Californian who lately visited it, declared that he could make 2\$000 per diem by panning the gold which lies unworked in the banks. Then we came to the Lapa, the longest and tallest limestone bluff on the river. This "rupes præcelsa sub auras" is broken into a thousand cracks and holes, whilst the cavern is fronted by the most corpulent of stalactites. Here the Calcaire is based upon an iron-stone grit, which stains the banks with

* The Copahyba, also written Copaiã, Copauaba (Copaifera officinalis, copaier, "capivi" tree) will be mentioned in Chap. 6.

† Arruda calls this Malvacea Guachuma

(Guaxuna) do Mangue (Hibiscus pernambucensis).

‡ Literally "perfumed wood," a Laurinea.

iridescent water and rests upon sand, evidently the old bed. In many parts the slopes are frosted over with a curious incrustation, which lasted to the mouth of the Rio das Velhas. The crew declared that it was the efflorescence of arsenical pyrites from Morro Velho. We dissolved it in boiling water, strained it through flannel, and made a hardish cake of uncrystallized matter like impure sugar; the taste was that of alum and saltpetre. The latter, as in Kentucky, often overlies a whitish-yellow, arenaceous soil, whose pores act as strainers. The rest of the surface was a rich soil some six feet deep, or double what satisfies the farmer on the fertile Mississippi.

Now the currents are becoming rapids, and the bed is studded with islets of calcareous stone, dangerous during half-flood. At the Porto da Palma* M. Dumont's navigation at present ends. Four huts stand at the Barra de Páu Grosso, justly so called from the huge timber of its banks. It is said to head near the Rotulo† estate, which was bought from a certain Marquez (P. N.) of Sabará by the English Company at Cocaes, who intended it to supply their miners with provisions. The survey of this Fazenda extended over a year, and cost some 1400*l*. The overseer under the General Manager, Mr. J. Pennycook Brown, is a Mr. Broadhurst, whose father, together with a son-in-law, Manuel Simplicio, bought from Sr. Bonifacio Torres part of the estate called "Cana do Reino." Mr. Broadhurst the elder brought out English machinery for carding, spinning, and weaving cotton; he was afterwards drowned in the Cipó River, which runs out of a dip in the mountain. The same happened to two or three other Englishmen—an accident charitably attributed to the superior excellence of the rum. The Fazenda do Rotulo has fine red and black soils, based on limestones, and in two places saltpetre has been worked. It is to be sold for 50 : 000 \$000, but it has the disadvantage of being far from water carriage. On the other hand, it is some six leagues long by two broad, and it would support a little settlement of forty families.

At 5.10 P.M. we idly came to anchor off a sand-bank, the Praia da Canção : ‡ it is backed by land bare of grass, and a few huts

* Or Porto das Palmas.

† Rotulo means a roll or label; it is generally corrupted to "Rochelo."

‡ "Of the nettle" (*Jatropha urens*). The

wild men, who were well acquainted with and had given names to the medicinal growths of their forests, used this plant in local phlebotomy. They switched with it

are on the other side. We slept on board the "Coffin," and were pleasantly surprised to find no insects. The night was still as the grave, and at times curious sounds from water, earth, and air reminded me of those described by wanderers in the Amazonian forests—the work of some night-bird or beast, or fall of heavy fruit, or the plashing of hungry fish. At midnight, tall distinct pillars of white mist, silvered by the moon, formed a majestic colonnade slowly progressing down stream. At 4 A.M. the hot humid air of the River Valley was clear; before sunrise, however, a cold draught swept from the Serra Grande or do Espinhaço on the east,* and condensed the vapour into a thick fog. During the day the breeze chops round to the north, forming a head-wind which refrigerates the surface stream; the fish will bite at midnight but not at noon. The evenings are mild, serene, delightful.

August 20.—We resolved to set out betimes, but the vapours kept us at anchor till long after sun-rise, and we had reckoned without (including) our host. The country now assumes a type which will last. In the offing is a grassy table-land or ridge either with one or two distances, bristled with a few trees, and rising high above the avenue of bush and forest, through which the stream flows. After a couple of hours we paddled under a split bridge which had been carried away in 1858: like that of Casa Branca it should have been raised at least 50 instead of 32 feet (10.30 metres), a fair allowance for extraordinary floods. The site is, as usual, badly chosen; instead of being divided into two a little lower down, it runs like a causeway right across a branch channel formed by inundations on the left bank. The original cost had been 2:800\$000, and the holes made for planting the piers had yielded 4:400\$000 of gold. An engineer offered to repair it for 600*l.*—instead of 60*l.*—and the owner therefore prefers a raft.

Just below it, to "larboard," is the pretty little village of Jequitiba; † here is a lakelet draining into the main channel

the part affected, and when sufficient inflammation was produced, they made a great number of incisions with a stone or a knife, a style of cupping more barbarous even than the African.

* This corresponds with the south-east wind that blows at sunrise on the lower

Mississippi.

† Or Gequitibá, a magnificent forest tree (*Couratari legalis*, Mart.; *Pyxidaria macrocarpa*, Schott.). The colossus is often 180 feet high, and its spreading shade would shelter a small caravan.

further down. Opposite we sighted the Fazenda do Jequitibá, a sugar estate belonging to Colonel, better known to the people as Capitão Domingos Diniz Couto. It was impossible to pass him, and the visit led to the expected result; a room was shown, breakfast was ordered, and with difficulty I extracted a promise for dismissal on the next day—after the early meal. One cannot sympathise with the Northron's estimate of Brazilian hospitality. Besides the fact that the guest has obligations as well as the host, I always find in the Fazenda sufficient intelligence, especially on local matters, to make up for lost time. At Jequitibá I was asked about the murder of the Baron von der Decken; at Jaguára my name was shown to me in the "Revue des Deux Mondes," a publication which, not having been salaried, persistently abuses the Brazil, and consoles the Brazilians by its gross ignorance of the subject which it maltreats.*

Colonel Domingos has a fine taste for good soil; people wonder that he still works at adding acres to acres, but the process has now become part of his existence. He has some forty square leagues of land, and travelling down-stream for three days we shall pass his estate. Besides this Fazenda he owns the Ponte Nova on the Barra de Jequitiba, about six miles distant, the Paiol with 100 head of negroes, the Bom Sucesso with upwards of 300, and the Laranjeiras. He will sell any or all of them, and from 1 pair to 500 pair of hands; he begged me to publish this sporting offer, which I accordingly do.

We spent a pleasant day, and were visited by M. Bruno von Sperling, a German engineer, married, and settled near Ouro Preto; he is now surveying the Mello estate. A small Portuguese landholder told me that he had heard of coal in the neighbourhood, but exact information was not to be obtained. As the Colonel was suffering from cataract he sent Sr. Antonio Justino de Oliveira, his kind and civil administrador, to show us his fine grounds. The place would be a Paradise with a steamer passing by it once a month. The gardens, sloping down to the stream, give a pretty view of the little Arraial on the opposite side, with its chapel, backed by pink-blue hills in the far distance. The many acres were planted with a few roses, cockscombs, and

* I refer especially to the "Review's" articles upon the Brazilo-Paraguayan war. Either it knows the truth, and conceals, or rather travesties it; or it ignores facts, and should seek information.

other flowers; the fruit trees were mangos, figs, Avocado pears (*Abacutis*, *Persea gratissima*), and large Cuyétes or gourd trees (*Crescentia Cujetè*); the rest was sugar* and bananas. There was a noble row of Jaboticabeiras (the well-known *Eugenia cauliflora*) with cupped or rounded summits, dense foliage, and smooth myrtaceous bark, everywhere studded along bole and bough with small yellow-white flower-tassels and young berries, little larger than a pin's head. In São Paulo the tree bears fruit only once a year in early summer, October and November: here it is continually productive. I had looked forward to the myrtle season as one does to the strawberries in England and the cherries in France; the tree, however, is not found on the Lower São Francisco—a great disappointment. Its fruit is one of the most delicate, in size a little larger than the biggest gooseberry, with a tough coriaceous skin like that of the Brazilian grape. The flavour is lost when the Jaboticaba is brought to market; the proper thing is to eat it off the trunk; a tree may be hired at São Paulo for 10\$000 per annum, and “andar à Jaboticaba” † *en famille* is a very pleasant picnic.

August 21.—Having offered some parting advice to our host touching a visit to some ophthalmist at Rio de Janeiro, before couching became too late, we set out at 7 A.M., much condoled with. The river was beautiful; its grassy bluff seemed to bar the course, and the irregular lay of the heights told us what was coming. At 1.40 P.M. our troubles began, they were to last for five days. Our awning nearly came to grief at a sharp volta or bend † a little below the Barra do Diamante. Twenty minutes afterwards we came to the Saco da Anta or d'Anta. The Saco or Reviravolta here corresponds with the “Horseshoe bend” of the North American rivers; the stream makes a sharp turn, at times running almost parallel with itself, and the land on its convexity becomes a quasi-peninsula with a narrow neck.

* I have rarely seen finer sugar-cane, certainly none in the Brazil. It is the Cayana quality, and the stalks when cut are 10 feet long by 1½ inch in diameter. Such is the effect of the Maçape soil.

† “To go to Jaboticaba.”

‡ Usually pronounced in Minas and São Paulo “Vorta.” The confusion of the *v* and *l* are as common as in China, and

I have heard a “University man” and a Provincial Deputy call the Estrella da Alva (the morning star) *Estreira da Arva*. As has been said, many of the “Indians” cannot articulate the *l*. Moreover, in Tupy it is popularly asserted that *f*, *v*, and *l* are wanting. This, however, certainly does not appear in the *Lingoa Geral*, which ignores *d*, *f*, *h*, *l*, and *z*.

Here a grassy bluff on the right bank fends off and loops the stream; the tall rock falls into the bed, throwing over a ridge which causes the water to break nearly right across; the material is lamellar shale, porous, and full of holes; it might easily be removed by a small steam-hammer. The current, as we can see, swings to the left, having a large sand-bank to the right, bends in the latter direction under a tall bank and disappears;* the course is from west to east. Chico Diniz went down in the tender carrying our damageable goods, and cut away some branches dangerous to the awning. We then floated along the bank to port under pole, and stern foremost, an occupation which cost us eight minutes, and the preparations for it half-an-hour.

After the "Tapir's bend" we at once came to the Funil—here, as in São Paulo, pronounced Funí. This name—entonnoir, or funnel—in land formations means a defile; on the Brazilian rivers it is usually applied to rapids breaking across the head of a long, straight reach that ends in a vanishing point. Here an eyot or sand-bank, covered with gravel and pebbles, bisected the upper entrance, and the course was from west to east. We bumped down the island's right side, hugging it to escape bad rocks on the river's bank to starboard; then we poled over, always a delicate operation, to the proper left side, avoided the "brush," and made fast. Bag and box were sent down the left branch in the tender, which ascertained that the rock-bed was now too much exposed for the raft. Perforce we again bumped across the stream below the heavy central break to the right bank, where canoes, plantains, and a hut denoted the Fazenda do Funil.†

At 5 P.M. we prepared our dormida (bivouac) on the Praia do Funil, a dry sand-bank to the left. The first step was building the hearth, and this did not take long, fuel being found everywhere. I observed that, contrary to the African habit, my people preferred the small fire, which was the practice with the "Indians," who, to warm their naked bodies even in the wigwam, and to defend themselves against wild beasts, used to make their

* The total windings are south-south-east, south-east, east, north-east, north, and at last the general direction, north-west. M. Liais, who descended the Rio das Velhas, where the river must have been somewhat fuller, shows nine detached rocks,

five on the right and four on the left. This obstacle would severely try the engines of a tug going up-stream.

† M. Liais shows a clear way between the sand-bank on the left and three lumps of rock dotted along the right bed.

women keep wood burning all night.* *Carne Seca* and fish, when any is caught, are skewered and planted by the blaze. The next operation is to make *Angú*, that almost universal dish; porridge, hasty-pudding, stirabout, polenta, mush, and the *ugáli* of *Unyamwezi*. *Fubá* or maize meal is thrown little by little into boiling water and moved with a stick, or it will be lumpy: it should be eaten as soon as the whole is wetted.† The favourite national dish, *feijão* floating in lard,‡ is kept upon the fire all night so as to be ready for the dawn-breakfast. The men pass the evening chatting and smoking till ready for sleep, when they spread their mats and hide well in the smoke-drift, and no wonder that they so often suffer from *Cadeira* or lumbago.

The air was delightfully pure, and I sat for some time listening to the voice of an old friend. “Pst”—the blow—“Whip-poor-Will.” This *Caprimulgus* begins to be vocal with the crepuscule, somewhat like certain owls, especially the *Strix Aluco* of Europe,§ and his loud and remarkable cry will extend, with certain intervals, all down the *Rio de São Francisco*. His man-

* Like Africans, they used to light fires by the side of newly made graves, not to frighten away evil spirits or the devil (according to travellers), but for the personal comfort of the defunct.

† Another form is called *Mingáu* (not *Mingant*, as Prince Max. i. 116); it is made of manioc, farinha in water, and sometimes with a little cinnamon. A third preparation is termed *Cariman*, derived from *Caric* to run, and *Mani Manioc*, “running manioc.” In old authors we find “mingan” or “Ionker,” potage or thick “bouillie,” made with salt, pepper, and manioc-meal. Yves d’Evreux mentions a Norman interpreter named David Mingan. The *Pirão* is farinha mixed with hot water, or better still, with broth of fish or fowl; it is a favourite accompaniment with fish.

‡ Popular writers inform us that fatty and carbon-producing substances, so necessary to the inhabitants of the Arctic regions, lose their use as we approach the Equator, and are supplanted by fruits, rice, and similar light food. This is by no means the case. The Italian consumes a quantity of oil which would make an Englishman sick. The Hindu swallows at a meal nearly a tumbler full of *Ghi* or melted butter, and few, if any, Northrons can eat his greasy sweetmeats with impunity. The naked negro, panting near the Line, saturates his food with palm oil, and even at *Bahia* in

the Brazil, where the “coloured cuss from Africay” is comfortably clothed, where he can buy meat in abundance and obtain any quantity of ardent spirits, the oily and spicy *caruru* and *vatapá* (palm-oil chop, &c.) are eaten by all classes. Near the Equator, the damp heat has much the same effect upon diet as the cold of high latitudes; strong diffusible stimulants, port, sherry, and stout are better than thin claret and French wines, and meat is much more digestible than vegetables. Practice is worth all the theories or rather the hypotheses of pseudo-theorists, and the habit of one writer copying from the other without an attempt at independent inquiry traditionalises a variety of error.

§ Prince Max. mentions sundry other *Engoulevents*. There is a larger species than the common Whip-poor-will, which *Maregraf* calls *Ibiyaou*, and he (i. 267) *Bacouraou*. Another (described i. 370) is the *Caprimulgus æthereus*, which soars high in the air like a bird of prey. A third is the *Mandalua* (*C. grandis*), white mixed with brown: and its sharp whistlings fill the forest. The German ornithologist described for the first time (iii. 91) the *Curyangú*, a day-bird which flies during the light, and mixes with horses and black cattle in the pasture; and the *Caprimulgus leucopterus* (iii. 178), whose beak is like that of *C. grandis*.

ners, as far as we observed, resemble those of the N. American species, and we often saw by day a pair nestling in the sand. The Portuguese call the bird "John cut Wood," and it is a curious commentary upon the "ding-dong" theory that one race hears "Pst—Whip-poor-Will" and the other "João Corta Páu." By mentally repeating the words I could produce either sound, but the Latin version seems preferable.

August 22.—We were aroused at an early hour by the Coryangú or Curyangú (not Criango) bird (*Caprimulgus diurnus*, the *Nacunda* of Azara), which seemed to say, "How well ye woke!" This goat-sucker has a musk-coloured coat, with white spots and bars on the wings. I often disturbed a quiet pair nestling by day in the shade of rock crevices; the flight was that of our night-jars, and it was always short and low. We set out at 6 A.M. somewhat prematurely, and the "smokes" obscuring the river-surface, nearly caused an accident; a tree on the left bank, which could have been cut in ten minutes, drove us amongst the stones of a "rush."

At 8 A.M. we shot the Saco do Barreiro (de Gado)* the Bend of the Salt-Lick (of Cattle). These places abound on the Rios das Velhas and de São Francisco; the banks of red, grey, yellow, or dull brown clay are burrowed with lines of holes by the tongues of beasts and the beaks of birds, which usually visit them in early morning. As in the United States, the lick is often saline only by name, and the practice must be compared with the earth-eating disease of Africans in the New World. In parts the breeders mix salt with the clay and throw it upon the stream-side to produce an artificial glaisière, but as a rule it is not considered sufficient to lay down salt, as the lick requires a peculiar sort

* M. Liais calls it "Cachoeira do Paó Seco." Here the stream runs from south to north, and is faced by three low blue hills. We easily descended in four minutes, crossing from right to left, and thus avoiding the breaks on both sides.

According to Azara (i. 55) the "Indians," who ignored the use of pure salt, supplied it by the saline "barro," which they devoured in abundance. Prince Max. remarks (ii. 257): "La glaise du Brésil n'a pas le goût salin, et je n'ai rencontré chez les habitants indigènes de ce pays aucun mets salé." A curious commentary upon the supposed necessity of the condiment. It must, however, be observed that the Tupys were

eminently carnivorous, and thus they found their salt in their meat. This of course would not be the case with "vegetarians." Earth eating is not unknown to the Brazilians. I have shown that in Africa, as amongst the Ottomaes Indians, whom Humboldt describes as intrepid geophagi, it is eaten in large quantities without doing injury. I cannot, therefore, with St. Hil., hold that the Ottomaes are the sole exception to the fatality of geophagism. He declares that the Brazilians prefer the clay of the termitaria; this is also the case in Unyamwezi, where it is called "sweet earth."

of clay. After two unimportant features,* we drew near the Maquiné Rapids, which have a very bad name. No one could explain the word; our pilot "guessed" that it was that of a huge "kraken" like the "worms" of "strange dragons of vast magnitude" which haunted England in the "good old" days. It is called the "Maquiné Pequena," to distinguish it from a creek lower down the river.

The first symptom was a fragmentary ledge on both banks, dark friable limestone tilted up at an angle of 40° ; this is called the Cabeceiras do Maquiné. We made fast to the left bank near a fine cotton-field that runs up a gently sloping hill. Here we could look down the straight reach, some 400 yards long; about 600 feet of smooth water separate the Upper from the Lower Rapids, which are considered to be the worse. They are formed by the bluff end of a short range, whose general course is to the north-east, but which bends to the north-north-east, throwing the stream from its main direction to north-east 25° . The limestone base forms an oblique ridge from north-west to south-east, where the water breaks right across, and even at this season only one rock appeared well above the surface. The friable limestone, split and stratified, is easily broken with the hand; before approaching the narrow wall there is a fundão or hollow at least ten feet deep, and thus nature would keep open the narrowest road.

After reconnoitering, we embarked with the "trem" or luggage in the tender, which now drew 4—5 inches. Apparently there was a fair way on the right, but it is not shown in the Plan, and the pilots always prefer the left. We went to port of a central rock-knob, and, safely crossing the broken water, we made for the half-way house, a sand-bank on the starboard side fronting the smooth that divides the Rapids. Hence we watched the "great ole barque" take her lumbering way; after two or three chancy swings and half broachings-to she obeyed the pole, and came down gallantly.†

Having rested till noon, we prepared to attack the Maquiné

* The Cachoeiras das duas Barras and das Cabras.

† M. Liais's plan shows a clear way in the midstream, and two main obstructions. The upper break is of two blocks of stones, with the thalweg in the centre. Then after

the smooth, come three detached rock-piers on the right, and opposite them a corresponding formation, but smaller and more broken. In this section there are two stones, which must be removed from the thalweg.

Abaixo or Lower Rapids. Fortunately, I left my books on board the "Eliza." We went to the left, grounded on the rock ridge, which slants like the upper formation, and were whirled round against the trees; I could save only my journals, somewhat like, to institute a modest and uninvincible comparison, Cæsar, Camoens and Mad. André (de la Mediocrité). Reaching the left bank we viewed from the feathery shade of a charming Jatobá the doings of the ark. A second portage had been made, each occupying some two hours, and, thus relieved, she slid safely down in her usual playful elephantine way. But she was assisted by certain moradores of the neighbouring hamlet of Maquiné Pequeno, José Luiz de Oliveira, who, accompanied by his two cousins, stripped, and lent a hand in lifting the "Eliza" at a critical moment. They would take no reward, but a glass of our fine cohobated Lavado and a few cigars seemed to content them.

After shooting this "Long Sault," the line, "barring" the easily avoided scatter of sunken rocks (pedras mortas), should have been safe, but it was not so. My men had worked well, but they had drunk still better. They dashed upon a limestone rib near the left bank. They then bumped heavily and unnecessarily in two places; the tender was almost lost, and I felt by no means comfortable as we approached the Cachoeira da Onça. Probably from these adventitious circumstances, the Ounce Rapids have left with me a more unpleasant impression than all the other combined difficulties of the Rio das Velhas. *

After about two miles we turned to south-south-east and entered a gorge already gloomy at 4 P.M. "'Sta gritando," it is crying! said the men, giving anxious ear to the roar. Advancing swiftly for a few yards we saw the Cachoeira, breaking across with dangerous projecting rocks. We poled down the left side, and by opening too much to starboard we struck heavily upon the stones, and the water spouted up between the planks of the platform. Having escaped this shock, we crossed the stream to a smooth on the right and prospected it. The result was a stern-

I went down entirely by the left; the stream, however, evidently runs at the middle of the bed, and this, when opened, will give a clear passage. In the Upper Maquiné the detached rock or rocks must be knocked away, and in the lower the wall must be pierced. It would, I think, be easy here to work a large hammer, not by

steam but by water power.

* Yet the Plan shows only a stone pier, and two hard heads on the right, faced by five scattered rocks which may easily be removed. The danger is from the detached stone upon which the current breaks immediately below the upper "gate."

presentation, and we slipped down in eight minutes, narrowly shaving to port a dark laminated stone, dipping 50°, which was angrily throwing off the waters, and upon which the current broke.

The crew was tired and out of condition; I resolved to avoid, by an early halt, the risk of a bad accident. We found on the left, opposite a clump of five huts called Jatobá, a few yards of sand under a precipitous bank of yellow clay; the men termed the place *Praia da Cachoeira da Onça*. The day had been wearying work, we had nearly boxed the compass.

An angry mass of purple-brown cloud hung in the western sky; my men, hoping that the stream would be swollen, prayed for rain, which at this season sometimes lasts three or four days. At night the view was suggestive. On our right was the ominous growl and the lurid flashing of the Ounce Rapid: from the left or down-stream came the rattling babble of the *Corôa braba*, the "Fierce Sandbar," whilst the sky was red with the last gleam of day, and flashed with the frequent prairie-fire.* In front flowed the stream, dark steely blue; the further waters were scolloped with the black reflections of the trees, which rose high where the Little Bear should have been.

And this desert stream will presently become a highway of nations, an artery supplying the life-blood of commerce to the world. The sand-bank upon which we lay may be the landing-place of some wealthy town. The "Ounce Rapid" and the "Fierce Sandbar" will be silenced for ever. And the busy hum of man will deaden the only sounds which now fall upon our ears, the baying of the *Guára* wolf, † and the tiny bark of the little brown bush rabbit.

* St. Hil. (III. i. 202) declares that in Western Minas cultivators fire the grass only during the moon's wane (*dans son decours*).

† The word is *G-u-ára-ã*, a great eater, very voracious. "G" is the relative, "u" is to eat, and -ára (in Hindostani "wálá") is the verbal desinence. *Guara* (an eater) is intensified by the post positive *ã*. The name is of the animal here called wild dog or Brazilian wolf (*lobo*), the old *Ursus carnivorus* being very well calculated to mislead; the *Aguara-guazu* of Azara, and the *Canis mexicanus* of Cuvier. I have seen closely but a single specimen, which

much resembled the French wolf, except that the coat was redder. This carnivore especially favours the lands where forest and prairie meet or mix. I have never heard of its attacking man; but, on the other hand, there are no snows to make it ravenous.

There is also a swamp-bird called *Guará* or *Gara* (an Ibis), a word derived from *ig*, water, and *ará*, a parrot or parroquet: "water-parrot," from its fine pink-red colour.

As a desinence, *guará* means lord or master; e.g. *pyguara*, a guide, literally lord of the path or foot (*py*).

We are taught to dwell far too much upon what has been; upon the ἀρχή, the proem, the first canto of the grand Epos of Humanity; we are too indifferent about what is to be, in the days when the whole poem shall be unfolded. Rightly understood, there is nothing more interesting than travel in these New Worlds. They are emphatically the Lands of Promise, the “expression of the Infinite,” and the scenes where the dead Past shall be buried in the presence of that nobler state to which we must now look in the far Future.

CHAPTER V.

TO THE FAZENDA DO BOM SUCESSO.

THE CORÔA, OR SAND-BAR.—PREPARATIONS TO VISIT DIAMANTINA.—THE PLEASURES OF SOLITUDE.

The day is placid in its going
To a ling'ring sweetness bound,
Like a river in its flowing—

Wordsworth.

BEFORE setting out it will be necessary to describe the “Corôa”^{*} feature, of which a neat specimen awaits us.

The “crown” is the “sand-bar” of North American rivers, an island in the stream, but very unlike our “holm,” inch or eyot. It is mostly, as we have observed of the Cachoeira, at the mouth of some little stream where the influx of fresh water slackens the flow, and it is often built upon detached stones or upon rock-ridges. The current swings to either side, leaving in the centre a bald convexity like the shaven pole of a Corôado Indian, and of all sizes, from yards to acres. The water is shallow above it, deep below, on both flanks, and in the baylets and concavities where fish live to plunge and cattle to bask. When the formation is very low the drift wood floats over it; otherwise, tree-trunks are mostly found at the sides, and snags must be feared, especially about the head or up-stream. Often the Corôa is double, or even treble; it is always elongated down stream by the current; never circular as in lake formations, and the edges are either flat with the water, or stand up in dwarf precipices.

The surface is pebbly and gravelly—of all sizes, from an inch

^{*} Pronounced C'rôa; it is the Latin Corona, certainly not to be written with Prince Max. “Corroa.” The feature is opposed to Praia, a “sandbank,” attached to the side. The Tupys called the former Iby cui' oçu, “Corôa de Arcia,” opposed

to the latter Iby cui' praia; with them Cua was the river plain (varzea) where liable to inundation, and “Coára,” literally a hole, was a little bay (enseada) or river port, where canoes can be made fast.

to a foot ; these scatters come from the banks, and are brought down by the floods. The material is mostly of quartz in its protean forms, jasper, touchstone, pingas d'agua (Quartzum nobile), crystallized, stratified, and almost always red or rusty with iron. There is also an abundance of sandstone, limestone, and chlorite, which may or may not contain gold,* together with bits of "cánga" or ferruginous conglomerate, the gift of the upper country. In places the sand is very loose, admitting the foot to the ankle. In the hollows where rain sinks there are large flakes of mud three to four inches deep, and wherever the waters extend, the pebbles in the dry season show a coat of indurated slime, whose base may be either cascalho (rolled gravel), soft sand, or hard mud. These Corôas pure and simple are haunted by gulls and terns, hawks and kingfishers, ducks and herons, plovers, sandpipers, and other birds which will be mentioned.

A scattered vegetation of stunted trees and verdigris-coloured grasses and shrubs, forms, generally beginning with the end down stream, and thus the sand-bar becomes wooded.

The typical growth is the Araça guava, with comparatively small thin leaves, and an exaggerated strength of wood, self-adapted to its locality. Another common shrub is the Ariuda, also called "Alecrim da Corôa;" the leafage is smaller than that of the Psidium, the stem and branches are as stout and tough, and it is bent down stream by the force of the inundations ; this plant also appears upon the sands. In places the water-sides are edged with a sedgy grass, whose blades average a finger and a half in breadth. It is used for stuffing pack-saddles. Upon the Rio das Velhas we shall not find the osier-like and broom-like growths which we first observed in the Rio de São Francisco below Remanso.

The sand-bar first forms under water, when it is called Areão, or "big sand;" it rises by degrees, and where the annual floods are not too violent it presently becomes an "Ilhota" or islet ; a "Carapuçã" if cap-shaped ; and if large, an "Ilha" or island. Many of them, like the Mississippi tow-head, are partly timbered, the wooded portion up-stream, the sandy below, or *vice versá*. The feature is then permanent, and the figs and mimosas bind the

* From some, for instance the Corôa da gallinha, gold has been taken ; the people dig deep into the sand.

soil like the "cuttun woods" of the United States. Passing the Rio Pardo we shall see another complication, where blocks of blue limestone, thinly grown with sturdy shrubbery, cumber the surface, and lower down on the São Francisco, a combination of tall rock, timber, and sandflat.

M. Liais advises these obstructions to be removed by "dragage." With diffidence I differ from him; but would not the obstacles upon which they are formed themselves require dragging? A single rock will, like a stick in the sandy desert, produce an accumulation of matter; the same causes continue to be in operation, and doubtless every flood would renew the effects.

August 23, 1867.—The warm morning tempted us again to set out at 6.30 A.M., half-an-hour too early. The course was from east to west, and we found our babbling friend the Corôa braba a complicated affair of stone and sand-bar. On the left was a rock, then gravel, then another rock; to starboard rose the sand-bar, upon whose dexter side we lost no time in grounding heavily. We poled off with difficulty, and I did not like the look of things. Luckily we met a ragged youth, punting a dug-out towards the village, and, for a consideration, Herculano Teixeira de Queiroz was persuaded to accompany us. He landed, and presently returned a smart young waterman, in white shirt and pants, with straw hat, and the inevitable bone-handled sheath-knife strapped round his waist.

After about three-quarters of an hour the "Eliza's" head was turned to the north-east, thus describing a long horse-shoe with a very narrow heel. In places the river is to the land route, 3:1, not an unusual ratio; in others, 5:1. Before us rose the tall blue broken wall of the Serra do Baldim, the "Baldoino" of M. Liais, which bore north-east of Jaguára; it is said to contain deposits of alum, like those which we found on the São Francisco. Half-an-hour afterwards we passed the Cachoeira dos Paulistas, whose ledge does not run right across; the Plan makes it part of the "banks of Cafundó."* It became evident that the rapids were now waxing less laborious and far more dangerous, with deeper water and

* This is apparently Ca fundão—here (is) a deep place—fundão—where the pole does not reach. Near the right bank there is a sand-bar; on the left, and a little up-

stream, is a hard gravelly sand-bank flanked by two rock-piers, one above, the other below it.

narrow channels, likely to jam the raft. We hugged the right point and then made the mid-stream, steering for the apex of a smooth equilateral triangle strongly defined by borders of foam or ripple broken against stocks or stones—here the usual guide to the clear way.

Then came a complicated obstacle—a bold bluff of ferruginous stone to port deflected the steamer to starboard, almost from north-east to south-east. Avoiding two sand-bars and two rock ledges, we went to the right, and nearly rounded the Corôa—going with the sun—from south-east viâ east and north-east to north-west. A couple of rock-piers in our way made us cross to the left, and bending to the north we found a break formed by detached lumps of limestone. This “Cachoeira da Barra do Engenho de Manuel da Paixão” was an affair of eight minutes; the deviations are risky, and, before a steamer can ply, the bed must be cleared of rocks, after which the current will dispose of the sand and gravel.

After winding some four miles, where a voice could be heard across the neck of the loop, we saw ahead fine cotton-fields in full bloom, and a tier-like succession of gently swelling hills in far perspective. A field of plantains on the left bank, and four huts, of which at least one was a Venda, told us that, contrary to prophecy, we had reached S^{ta} Anna de Trahiras. This place is on the highway of the Tropas, travelling between the Provincial Capital and Diamantina;* it became a parish in 1859, and it is now under the vast municipality of Curvello. In 1864 the population was computed at 4298. I was told 12,000, which, as usual, doubles the probable number.

Here were two ferries, one with a chain and belonging to a kind of company, the other with a civilised wire-rope, procured from Morro Velho; the latter was the property of Sr. João Gonçalves Moreira, to whom I had an introductory letter. He met us on the bank, and showed me a tree marked by the water ten to twelve years ago, 40 feet above the present stream level. On this occasion the floods swept the riverine valley to the foot of the Campo hills, and people were taken by canoes out of their thatched roofs. In average years the inundation rises for a few

* The distances are by land, 25 miles from Diamantina, 21 from Sabará, 24 from Morro Velho, 9½ leagues (24 by water)

from Casa Branca, 6 leagues (by the river 20) from Jequitibá, and 4½ to our present destination, “Bom Successo.”

days to the ferry chain. If foreign railway engineers in the Brazil, which is everywhere subject more or less to these exceptional deluges, recurring with a somewhat vague periodicity, had taken the advice of the natives, and had built their bridges and drains accordingly, they would have saved themselves much trouble and their employers more expense.

We walked to the village on the right bank; the ground was somewhat stony, pebbly and poor. It was rich in the low shrub with a leaf like the Mimosa, known to the Tupys as Tareroqui, to the Brazilians as Fidegoso (*Cassia occidentalis*, *sericea*, etc). The "stinkard's" root is a powerful drastic, homœopaths infuse it in spirits of wine and employ it as quinine; the beans are sometimes made into coffee, as maize is in the United States. The village main square on the highest ground has two chapels—Santa Anna and the Rosario, a few young palms and some Vendas, especially the double store of Sr. Tóttó (*i. e.*, Antonhico or Antonio) Rodrigues Lima, and the apothecary's shop of the Professor of First Letters, who, though his father was named Custodio Amancio, has preferred to term himself "Emmanuel Confucius of Zoroaster."

The houses may number 200 or 300 within church-bell sound; all are one-storied, and mostly of the meanest. The only thing that seems to flourish is the goat; the "Cabrito" is here, unusually in Minas and São Paulo, favourite food. Our kind guide led us about to the several Prud'hommes, who invited us to pass the day. Sr. Antonio Gomez de Oliveira, a relation of Colonel Domingos, asked us to breakfast, and gave us some good English stout. His house was the neatest in the place, a long building fronted by a bit of shrubbery; of course it contained a shop.

Our temporary pilot had done work enough, and we sent to invite two others, but without the least chance of an answer for three days. Chico Diniz politely intimated his utter despair, and we returned to the ferry. Sr. Moreira enticed us to his home on the other side, and whilst he despatched a peremptory message, introduced us to his wife, and showed us the garden, in whose oranges and cabbages he took no little pride; here the soil is an improvement upon that where the village lies. He spoke warmly, evidently not believing a word, about the coming Steam Navigation; to him the Cachoeiras were insuperable,

and when we spoke of cutting away the obstacles we talked manifest Greek.

In 1853 a Government engineer had spent six months at the rapids above Trahiras; the people remembered his fusées and mule-loads of tin cylinders for mine-charges; all agreed, however, that he had not removed a single difficulty, and most men opined that he had left the place worse than when he found it. At last, worn out by delay, we bade a friendly *au revoir* to our host, and we quitted Trahiras, satisfied that if the opening of the Rio das Velhas be abandoned to men who receive public pay, and to those who live upon passing mule-troops, the splendid stream will remain long closed.

We set out shortly after noon, and the day was a succession of sand-bars and rapids, with rocks on the right, on the left, and in the central thalweg.* The first serious feature was the Ribeirão da Onça, a rapid on the left of a triple "Corôa;" it is so called from a little green-set rivulet up which canoes go for several miles. Presently we came to a place where four men were loitering; we offered to pay for pilotage, but they refused. They did not object, however, to assist us in cordelling down the Cachoeira da Barra do Ribeirão dos Geraes, alias Cachoeira dos Geraes (do Lamego).† Whilst they held the tow-rope we hugged the left bank, a drop of loose sand; the broken ledges of horizontally stratified dark stone project from the right shore above the rivulet-mouth, and deflect the stream to the left, thus doing engineer's work.‡ Above the rapids much gold has been dug.

A couple of hours carried us down to the Cachoeira do Lagedo,§ a small rapid formed by a porpoise nose of wooded bluff on the right; from its summit, they say, the Piedade of Sabará may be sighted. After sundry unimportant features,|| and passing the

* It began with two bluffs of rock, flooring the hill to our north. At the Córrego da Tabaquinha (the little Tabóca, Taquara, or bamboo), a rock-outcrop from the left bank intrudes upon and deepens the stream.

† The first name would mean the rapids at the embouchure of the stream of the General Lands, an influent from the right. Geraes are mostly lands out of the reach of the river, either Pasto, Campo or Mato, and bearing general produce, cotton, tobacco, cereals, as well as breeding cattle. St. Hil. (I. ii. 99) confines the use of the

word to pastures, and says that "Matos" must be expressed when forests are meant. I did not find this difference, nor did the people ever employ "As Geraes" to mean "As Minas Geraes."

‡ In order to drive the stream to the left, M. Liais proposes a "tunage avec enrochement" on the right with a passage through it for the streamlet; a gigantic work.

§ In the Plan rocks are placed on the right bank; in the description (p. 8) on the left.

|| The Fazenda do Jardim belongs to the

Corôa do Jardim, almost an islet, and to us a new spectacle, we anchored at the usual hour, shortly before 5.30 P.M., at the Praia da Ponte.* Below was a Corôa of the same name, which made music for us all night. Behind the hole-riddled bank were a few hovels with patches of sugar-cane growing poorly in rough, scrubby soil, good only for ticks. A few boors came up and stared at the menagerie; they would neither eat with us nor take anything but fire for their cigarettes, and we were as formal as they were. I had been warned to treat them with "agrado e gravidade"—civility and gravity—otherwise that they may become quarrelsome or lose respect. They spoke of a pilot, and we sent for him; but, as usual, he was ill. Two women bringing fowls for sale, squatted near us with feet wide apart like Africans, and chuckled their remarks to each other; nothing could be less like certain Buffalo girls. At sunset all disappeared, touching their hats in the deepest and gloomiest silence.

I felt saddened by this contact with my kind. It was the Present in its baldest, most prosaic form; the bright kaleidoscope of cultivated life here becomes the dullest affair of unvarying shape and changeless colour. There is no poverty, much less want; nor is there competency, much less wealth. There is no purpose; no progress, where progress might so easily be; no collision of opinion amongst a people who are yet abundant in intelligence. Existence is, in fact, a sort of Nihil Album, of which the black variety is Death. I prefer real, hearty barbarism to such torpid semi-civilization.

August 24.—The cold night made the fog hang long over the water, and we did not set out till 7 A.M. Two Corôas, neither of them in the plan, gave us some trouble. Thence the river entered a gorge, each side alternately being high ground,—wooded above and stony below. Before the hour was finished we were at the Cachoeira das Viólas; † but, instead of going down

widow of the Capitão Herculano; a streamlet comes in from the right bank, and below it there are two sand-bars: the first with a clear way to starboard, the second on the other side. Then came the Saco de Pindahyba, where the river loops to the south-west, and the Ribeirão de Luiz Pereira on the left.

* A Ponte is the name of a córrego

which does not appear in the Plan.

† Or, da Vióla; probably some one lost his fiddle here. The stream runs north to south; and the obstructions are two rock-walls from the right; then one from the left, and lastly detached rocks on the right. I include this feature amongst the bad ones, as it has done much harm in its day.

the mid-stream, we took the left to avoid driftwood, and we bumped like the bucking of a mule. A charming reach, with beautiful woods, appeared ahead, and the material of the latest clearings strewed the land; here the direction of the limestone (?) is north-east, and the dip 12° — 15° . After sundry unimportant features* we left on the west a fine bit of land, the Fazenda do Boi, belonging to Sr. Delfino dos Santos Ferreira. The people crowded down the yellow bank to stare and to frighten us about the Cachoeira Grande, a place of which we had already heard ugly accounts. The dialogue was in this style:—

“Do you know the Rapids?” we inquired.

“We know them!”

“Will you pilot us?”

“We will not pilot you!”

“For money?”

“Not for money!”

“And why?”

“Why? Because we are afraid of them!”

This was spoken as the juniors ran along the bank like ostriches or the natives of Ugogo; they are beginning to lose the use of their un-Latin “yes” and “no,” and to answer by re-echoing half your question—the true old Portuguese style.

Shortly before noon we landed on the right side and examined a thick layer of Canga or pudding-stone, probably auriferous, and possibly diamantine. The almonds were dark, rusty quartz, in the usual iron clay paste, and from this point downwards we shall see large deposits of it. Further on, sandstone lay facing the south-east in nearly horizontal courses, ready for quarrying. The men crossed to an orchard on the left bank, and brought back baskets of fruit and sugar-cane, which they tore and chewed like Botocudos. They sounded the horn, but as no one came they put off. Alas! they had robbed the church; the ground belonged to Padre Leonil, and worst of all, his oranges

* As the general course of the river is from north to south, I shall call the right bank east, even when it is not, and so forth. The obstacles here are a rock (os Pandeiros) in the centre, which causes a break, and allows passage on the left. Then to starboard enters the Ribeirão de São Pedro amongst rocks and sand-banks. Followed the easy Cachoeira da Agua Doce near the

Fazenda of the Sr. Nicolao de Almeida Barbosa. We swang with the stream to the left, avoiding the thick shrubbery clothing the bank, and finding a clear way between it and the three detached rocks of the Plan. Then a larger sand-bar than usual led to broken water, and sent us down by the right.

were not worth eating.* This, however, is here a venial offence. You may freely take from a plantation—a Roça cannot be robbed, is the saying—but you must not touch, for instance, a little plot of onions or other vegetables upon which the proprietor bestows pains, such as entering it at dawn. For the former are as *feræ naturæ*; the latter is a park or a poultry-yard.

Luckily for us—the Cachoeira Grande was no joke—we found at the Saco Grande, on the right bank, a small crowd preparing for a “Samba,” or to keep “Saint Saturday,” and perhaps “Saint Monday” with dance and drink. The men carried guns in hand, and pistols and daggers under their open jackets—evidences that they did not intend to be recruited. The women were in full dress—brilliant as rainbows—with blood-red flowers in the glossy crows-wing hair; but of the dozen not one was fairly white. After a few words with Chico Diniz, the bow pole was taken by a certain “Felicissimo Soares de Fonseca,” the stern was occupied by a “yaller”-skinned elder with curly white beard, “Manuel Alves Pinto,” and his son Joaquim. This looked like business. The new comers were men of few words; they saluted us civilly, and they pushed off.

The beginning of the end was the little Rapid of the Saco Grande or “Big Bend,” where the river bed turning sharply from south-east to north-west makes parallel reaches. To avoid the rock-pier on the left we floated stern foremost down along the right bank, here a mass of ferruginous sandstone, striking to the south-east and nearly plane (3° — 4°). After bringing the boat round, we left, on the right, two sand-bars and as many detached rocks; upon the opposite side also was a mass of blue stone,† which must not be approached. This elbow is too sharp for a tug-boat, and the obstructions absolutely require removal.

* They were very like the Laranja da Terra, the “indigenous orange,” alias the imported orange run wild. The taste is a fade “mawkish” sweetness ending in an unpleasant bitter; I have, however, seen the juice beneficially used in ptisane for one of the severe catarrhs (*constipacões* or *defluxos*) which abound in Minas and São Paulo. I presume that, like the Laranja Secca or juiceless orange, the “bitter orange” is the effect of a high country, rough soil, and other local conditions. St.

Hil. (i. 280) quotes Pizarro, who enumerates three subvarieties, one sweet, another agrodolce, and a third very sour, and believes that the Laranja da terra is a return to the primitive type of the sweet fruit. “Personne,” he says, “n’aurait probablement songé à nommer un arbre qu’on aurait fait venir d’Europe, oranger indigène.” This verbal argument is worthless; many productions imported in ancient times are now called by the Brazilians “da terra.”

† In parts of the Rio das Velhas it is

Presently we turned to the east-south-east, and faced the dreaded Cachoeira Grande, which is formed by another sharp bend in the bed, winding to the north-east. The obstacles are six several flat ledge-like projections of dark stone on the right bank, and four on the left, mostly awash, and cunning is required to spiral down between them. We began by passing the port of No. 1, then we made straight for No. 2, to the left; here, by pushing furiously up-stream—had a stick broken we should have been nowhere—the “Eliza” was forced over to the right, was swung round by main force of arm, and was allowed to descend, well in hand, till within a few feet of No. 4, which rises right in front. Finally leaving this wrecker to starboard, we hit the usual triangle-head, with plenty of water breaking off both arms. A single bump upon a sunken boulder (*pedra morta*) was the only event. The descent occupied sixteen minutes. The Great Rapid is more dangerous, but not so serious an impediment to navigation as the “Maquiné.” Any form of ram would easily knock off the heads of the rock-piers, and open a way in mid-stream—all that is wanted.

After many congratulations our friends made a show of taking leave; all had some important business, which proved on inquiry to mean “doing compliments.” As the dangers were not over, the keg of Restilo was produced, it was tasted and pronounced “muito brabo” (very hot in the mouth); the Ma-a-jor (myself) became so irresistible that all would accompany me to the Rio de São Francisco or—elsewhere, anywhere. The poles were twirled and wielded with a will. We left to port broken water and an ugly stone, a hogsback, known as the Capivára (*Hydrochærus*), and then we crossed to scrape acquaintance with a sunken mass in front. This place is called the Rapadura; it is a mere “correnteza,” but the many “dead stones” would render it dangerous for a steamer.

The end was the Cachoeira das Gallinhas,* to which we presently came. We gave a wide berth to a rocky wall on the right bank, and stuck to the left side of the Corôa, till we had reached its tail down stream. Here is a narrow gate formed by two rock

impossible, without testing the rock, to determine whether it be sand, clay, or lime.

* M. Liais treats it as a matter of little moment; we thought it quite the reverse, and evidently so did the pilots.

piers, projecting from the shores, and in such places "cordelling" is always advisable. The men sprang into the water with loud cries of "Hé Rapasiáda,"* and pulled at the hawser till the current had put us in proper position; they then cast off and sprang on board before we could make much way. We left to starboard two blocks and one sunken rock of fine blue limestone, brushing them as we passed. The "Rapid of the Hens" occupied us nine minutes, chiefly spent in shouting. The right channel may easily be cleaned: a mass of drift wood is all that obstructs the left, and knocking away the rock walls would soon start the "Corôa."

A second dram of the "wild stuff," and all our friends in need ruled. They blessed us fervently but stammeringly: they prayed for us somewhat the wrong way, and they unintelligibly invoked for us the protection of the Virgin and all the saints. They landed with abundant tripping and stumbling, carrying 1\$000 and a bottle of the much prized restilo. I had every reason to be grateful to them, for they had most civilly saved me an immense amount of trouble; but, shortly afterwards, reports of certain "little deaths" in which they had been actively concerned, showed that they were not exactly lambs, except after the fashion of Nottingham.

By this time my men were "pretty well dead beat." I anchored a little above the Barra da Cerquinha,† opposite the Córrego do Paiol. The ground was sandy and unusually clean, whilst the valley soil, apparently arenaceous only, produced cotton in quantities. To-day the river, except where disturbed by rapids, has been a vista of beautiful amenity. Mr. Davidson was in ecstasies, and began to talk of the Yazoo and to sing something about "Down the O-hi'-o!" The grandly moving stream, hardly broad enough to suffer from winds, is not too narrow for vessels to thread their way up, while steamers could easily turn in the fine reaches. At nightfall the sugar-wheel of the "Paiol"‡ creaked and sang in curious contrast with the accompaniment of nature; the distant hum and the nearer

* "Now, my lads!"

† The "Embouchure of the small hedge or paling (stream);" it is not named in the Plan.

‡ Properly a "bread-room," but often applied to places where coffee, sugar, and

even rum are stored. This Paiol has been mentioned as one of the estates belonging to Colonel Domingos. I afterwards visited it; the soil is fine, the water abundant, and there is a large house, with the usual chapel and sugar mill.

cries of birds and beasts, frogs and toads,* and a noisy little rapid fretting and snorting down stream.

We were now approaching a place of rest, and I contemplated with satisfaction a fortnight of land-march, even on mules. Rapids resemble in one point earthquakes—the more you see of them the less you like them, and the stranger at first is disposed to look contemptuously upon the prudence and precaution of the “old soldier.” Shortly after dawn we went down the small but ugly *Cachoeira da Cerquinha*, between a bad rock on the right and a stone ridge on the left, to which we inclined. It was followed by another little break.

After two hours' work we turned from the main stream up the *Córrego do Bom Sucesso*. Here we made fast the “Ajôjo,” and the crew agreed to keep guard in it at night. As a rule the riverines avoid sleeping in these places between the days of the new year and of the St. John. The waters bring down much earthy, decomposed matter: it is easy to smell the difference of the branches and of the main line, and especially during the *Vasantes*, or annual retreat of the waters; they dread the dangerous marsh fevers, remittent and intermittent, called the *Malétas*. At *Jaguára* I had been warned that the *Rio das Velhas* below *Bom Sucesso* required certain precautions, such as to eat much pepper, to avoid the cold night damp after the day heats, not to wash or bathe when perspiring, and not to drink coffee in the open air.† I could not, however, be troubled with so much “coddling,” and we both found the climate perfectly healthy.

After making the necessary arrangements we walked up to the *Manor House*; the air was crisp and dry, and the soil gravelly but rich. The stunted *Cashew* everywhere grew wild, and there was an abundance of the *Jaboticabeira* myrtle, justly called *cauliflora*, the aspect of the dark leafage being exactly that of an enormous cauliflower. The other fruits were the *Mango*, *Plantains* in a fine patch on the hill to the left: the *Gabiróba*‡ and

* Humboldt, on the *Orinoco*, heard by night the sounds of the sloth, the monkey, and the day-bird. This is not the case here, at any rate at this season.

† The two latter somewhat whimsical precautions are general on the *São Francisco* River, where the people, seeing an old hydropathist bathe in a state of violent perspiration, quietly remarked, “You are calling upon Death!” I have often known

Paulistas, even in the healthiest part of the Province, refuse coffee out of doors.

‡ In the System, “*Guaviróba*” is the name of sundry *Eugenias*. The *Tupy Dict.* writes the word *Guabiraba*. *St. Hil.* (III. ii. 270) tells us that the small species of *Psidium* “à baies arrondies” are called *Gabiroba*, opposed to *Araça*, those with pear-shaped fruits. I believe this to be correct.

the Araticum,* of which all are so fond. At the tall gate we found a fine fig-tree planted only fourteen years ago. The garden to the north-east of the house contains vines, as usual trained to lath tunnels; here Bacchus apparently refuses to live without support. The flowers were, as usual, few. The Brazil has many more of the wild than the tame.

I remarked the pretty white Beijo de Frade, or Friar's Kiss, and the Poinsettia bracts, brilliant as the "flame tree," and generally known as Papagaio, the parrot. There is also a graceful tobacco (*N. ruralis* or *Langsdorffii*), with thin leaves and pink flower: it is, I believe, the "Aromatic Brazilian," much admired in the United States, and there found to lose its aroma after the second year. The Tropeiros learned from the Indians, who used it for smoking, and in medicine, to clean with its infusion their mules of the Berne-maggots. The traveller will do well to remember that a leaf rubbed over his hands and face will compel the greediest mosquitos to buzz harmlessly about him. According to the System this *Nicotiana* grows spontaneously, and is a Brazilian indigen, local as the Missouri variety: I have always found it a companion of man, and flourishing unplanted about the houses and villages. The Coqueiro palms were peculiarly fine, although here as elsewhere the reticulum pendent about the throat, a kind of vegetable goître, is never removed. The Jenipapeiro † (*Genipa americana*, L.; *Jenipa brasiliensis*), whose fruit is compared by strangers with the medlar, but which appears to me even more nauseous, is a noble tree; its fine white flowers had already fallen. Wheat will grow at Bom Sucesso, but it is subject to rust, and the flour, which is made into bread, is of a dirty-brown tinge.

I introduced myself to Dr. Alexandre Severo Soarez Diniz, nephew and son-in-law of Colonel Domingos; his family occupied the Sítio, now the Fazenda of Andréqueicé, mentioned in 1801 by Dr. Couto. There is nothing to describe in the establish-

* Also written Araticú, and pronounced "Articum." The name is given to many Anonaceæ (*A. muricata*, *A. spinescens*, &c.). Thus the fruits are distinguished from the *Anona squamosa*, the custard apple of India, here called pinha, fructa do Conde, and at Rio de Janeiro by its Hindostani name, Atta (for Ata).

† This is the tree, le Genipayer, well

known to the "Indians," who painted their bodies with its juice, yielding a dark blue dye. The fruit is called Jenipapo, Jenipabo, or Genipapo. Such is the general rule in Portuguese, as Cajú, the Cashew-apple: Cajueiro, the Cashew-apple-tree. At times, however, the former is used by synecdoche, as grammarians call it, for the latter.

ment, which was the Casa Branca on a large scale. Here, for the first time, Friday appeared honoured by fish and eggs. After meals all stood up with clasped hands and prayed, ending with crossing themselves. As is the custom of old Minas, the slaves in waiting did the same. I do not know why St. Hilaire was so much scandalised by the anticipatory process. During the evening the household and the field-hands sang a long, loud hymn, and recited the "Christian Doctrine." On Sunday the prayers were more elaborate.

At Bom Successo, until four years ago, globules of free quicksilver were found adhering to the cross-battens of the "bica" or race of raised troughs which feeds the overshot wheel. Several bottles were filled, when suddenly the yield stopped. Mercury is reported to have been discovered on the Jequitinhonha River, and in other parts of the Minas Province; but a suspicion arose that it came from ancient gold washings. Here, however, all agreed that this could not be the case; we therefore resolved to inspect the formation. We followed the course of the Rego or leat which supplies the race. These water channels, sometimes 12—13 feet deep, are of vital importance to an estate, and are levelled by the eye, like the Kariz of Belochistan, to great distances. An Irish ditcher, if he could be kept sober, would soon make his fortune. The banks were green with grama (*Triticum repens*) pricking up from between the stones; the Herva do Bicho,* held sovereign for headaches; the bamboos were the Tabóca de Liceo, and the Cambahúba, which resembles the tasselled Criciúma. These gigantic reeds fatten cattle well, but it is believed that the food affects the wind of horses and mules. We were on the left of the Bom Successo stream, which heads three leagues to the north-east, and in it we found argillaceous shale, unelastic sandstone, slaty, talcose, and laminated,† fine blue limestone in bits and boulders, and quartz of many colours—white and yellow, rusty and black, and especially black and white—passing into one another. In the small creeks feeding this main line scattered fragments of cinnabar appeared, and a bit about the size of a nut was found in the leat.

* This well-known term is usually applied to the *Polygonum anti-hæmorrhoidale*, the Tupy "Cataiá" or "Cataya." This *Polygonea* supplies a bitter peppery decoction, used to cure the disease known as

"O largo."

† In fact, diamantine Itacolomite. There are several diamond diggings about Bom Successo.

After about four miles we reached the dam at the head of the leat; here stakes were bent down-stream, and weighted with stones, so that the floods might pass over them with as little damage as possible. Evidently the metal came from below this point; if not, it would have been deposited beyond the possibility of being washed down, in the deep water above the weir. We therefore thought it probable that, as has happened in Spain and Austria, in Peru and California, the water or the pick had struck the gangue of native mercury, and had set free the disseminated globules. The deposit in the earthy water would be washed out and exhausted, and thus the ore would not appear until another cavity may be laid bare.

Intending to visit Diamantina city, I had engaged at Jaguára an old Camaráda and employé of Casa Branca, named Francisco Ferreira. He had preceded me for eight days, acting as guide to Trooper Manuel and to the four mules obligingly sent for my use by Mr. Gordon of Morro Velho. Matters did not look pleasant; the "talkey" elder reported with a hiccup and a stagger, that it was "aw right;" and landsmen and watermen at once engaged in a general "drunk." It was in vain to take away the keg; in these Fazendas liquor is always to be had gratis. Mr. Davidson's health did not allow him to accompany me; and my three Calibans—Agostinho was to act page-cuisinier—would, without the strictest supervision, be in a normal state of disguise.

On the other hand my old longing for the pleasures of life in the backwoods—for solitude—was strong upon me as in Bubé-land. I sighed unamiably to be again out of the reach of my kind, so to speak—once more to meet Nature face to face. This food of the soul, as the Arabs call it, or diet of the spirit, as Vauverna-gens preferred—has been the subject of fine sayings, from the days of Scipio to those of J. G. Zimmermann; it is the true antidote to one's entourage, to the damaging effects of one's epoch and one's race; it is like absence, which, says the proverb, extinguishes the little "passions" and inflames the great; from those who think with others it takes all power of thought, but the "totus quis" comes out in it, and it largely gives to him who wishes to think for himself. "Homo solus aut deus aut dæmon," is almost half true; *Væ soli!* is evidently professional, and "O Solitude, where are thy charms?" is a poetical study.

How unhappy is the traveller who, like St. Hilaire, is ever

bemoaning the want of "society," of conversation, and who, "reduced to the society of his plants," consoles himself only by hoping to see the end of his journey! "Une monotonie sans égale, une solitude profonde; rien qui pût me distraire un instant de mon ennui." This, too, from a naturalist, "* * * Je finis par me désespérer à force d'ennui, et je ne pus m'empêcher de maudire les voyages." One understands the portrait which he draws of himself, veiled, with parasol to ward off the sun, and a twig to switch away ticks. It suggests a scientific Mr. Ledbury.

CHAPTER VI.

TO THE CIDADE DIAMANTINA.*

PARAÚNA RIVER AND VILLAGE OF THE CABOCLOS.—THE WINDY RIVULET.—THE
SERRA DA CONTAGEM.—COMPLETE CHANGE OF COUNTRY AND VEGETA-
TION.—CAMILLINHO VEGETATION.—BIRDS.—GOUVÊA.—DONA CHIQUINHA.—
SOLAR ECLIPSE.—BANDEIRINHA.—ARRIVAL.

Hæc Boreas . . .
Pulvereamque trahens per summa cacumina pallam,
Verrit humum, pavidamque metu, caligine tectus,
Orithyan amans fulvis amplectitur alis.

Ovid, Met. vi.

I SECURED a sober start from Bom Successo by sending forward my Calibans to bivouac at a place beyond the reach of liquor, and I followed them on the morning of Tuesday, August 27, 1867.

The cold windy night had hung the north with heavy blue fleece-pack, outlying an arch of lighter and more scattered

* Itinerary from Bom Successo to São João viâ Diamantina (approximately).

		hours	distance	miles	
1. Bom Successo to Burá	time	1.15'		6	} 1st day, 23 miles.
2. „ to Paraúna R.	„	3.0	„	9	
3. „ to Riacho do Vento	„	2.10	„	8	
4. „ to Contagem	„	2.15	„	8	} 2nd day, 23 miles.
5. „ to Camillinho	„	1.15	„	4	
6. „ to Gouvêa	„	4.15	„	16	
7. „ to Bandeirinha	„	3.45	„	14	} 3rd day, 24 miles. (Generally held to be 16.
8. „ to Diamantina City	„	3.0	„	10	
9. „ to S. João Mine	„	4.30	„	18	
Totals		25.25'		93	miles.

The Guides reckon ten leagues or forty miles between Bom Successo and Camillinho. They place Diamantina sixteen leagues (forty-eight miles) from the Rio das Velhas, and half that distance from the highest navigable point on the Paraúna River. From Bandeirinha to the Datas Mines they lay down three leagues, and I rode from the São João Mine to Bandeirinha (twenty miles) in four hours thirty minutes.

Diamantina is usually held to be fifty-six leagues (224 miles) from the Provincial Capital, a distance which greatly requires shortening. The Mine of São João is placed at thirty-two leagues (128 miles) from the Villa de Guacuhy, at the mouth of the Rio das Velhas.

vapour—signs of galey weather. Whilst the wind blows from the north or east we shall find the road dusty, not muddy; *vice versa*, if it shift to south. Here the rains open in early October, either with or without thunder-storms (trovoadas); if the 15th be still dry, people fear for their crops. The grass-burnings (queimadas), began about 9th—10th August, and will last through September: the patches are fired in alternate years, so that forage may never be wanting, and we shall sometimes see half a dozen blazings in different directions. The custom is old and poetical.

—— to fell the virgin wood,
To fire the second growths while young they grow,
To feed with fattening ashes all the field,
The grain in holes to hide.*

There is no doubt of the real injury, independent of the loss in timber, which such romantic and picturesque practice entails upon the woodlands. It must greatly affect the vegetation, and kill out all but the strongest species. In these rugged Campos, however, there is less to say against it; the grass sprouts at once, and the potash is believed to be wholesome for cattle.

I fell at once into the Caminho do Campo, the western high road to Diamantina City, on the occidental skirt of the Serra Grande or do Espinhaço. It is separated by an interval of ten to twenty leagues from the Caminho do Mato Dentro, on the eastern flank, and viâ the Serra da Lapa: this latter is the shorter, the more trodden, and the better, but still very bad; and both are equally detestable during the rains.

The path runs over the crests and round the flanks of familiar Campos ground, whose surface is sandy, gravelly, or pebbly, with scatters of loose stones, bearing stunted vegetation, Cerrados, Capoês † and “Matas,” or dwarf woods, clear of underwood, like the charming forests of France. The ground, strewed by the fierce north winds with dry leaves, was over-rich in ticks. Water gushes everywhere from a white or red clay, now compact, then a silty dust; and the vile bridges are logs loosely laid over a

* . . . derrubar os virgens matos ;
Queimar as Capoeiras ainda novas ;
Servir de adubo á terra a fertil cinza
Lançar os grãos nas covas.
(Gonzaga, Lyras, part 1, 26).

ated by two miles, the Capão das Moendas (of the Mills), to which it supplies hard wood, and do Padre (Antonio). Both are near waters flowing to the Bom Successo and thence to the Rio das Velhas. The usual desvios mark the worst places.

† There are two principal Capoês, separ-

pair of sleepers. There is very little of human life in view; on the left is the "Rissacáda,"* a Retiro, or shooting box, consisting of a few poor huts, belonging to Colonel Domingos, and after an hour's sharp riding I reached a similar place, the Retiro do Burá—of the Burá bee. Here my Calibans and animals had passed the night, and I was most civilly received by the honest, burly feitor, Sr. Paulino.

The inevitable coffee duly drunk, we pushed on merrily over broken ground at the foot of the hills, thick with copse, and showing green grass sprouting from the ashes of the dead. Where clearing was in process, the people worked off the reed-like vegetation with a bill-hook at the end of a long handle. Crossing the limpid streams,† and passing the Tapéra (da Maria) do Nascimento, the ex-home of a defunct widow, where the vultures were enjoying a dead bullock, we reached the Serra do Burá, which divides the basins of the Bom Sucesso and the Paraúna ‡ streams. Up this buttress, which is partly grassy, and partly white and stony, with boulders of blue limestone striking south, there are two steep windings divided by a step or level.

From the summit we have a perfect command of the country around us. We see in front the tall blue wall through which the Paraúna breaks: in places the summit appears level, in others there is a feature locally known as Tapinhoacanga, § or Nigger-head, a porcupine-like lump, with out-cropping ledges of dark bare rock. Behind us the Campos roll as usual in flattened waves to the blue horizon, a smooth ring except where fretted with some solitary peak or notch of darker hue which suggests the Koranic "W'al Jibalu autádän,"—a peg to pin down earth. Everywhere in the Brazil the idea of immensity suggests itself, and nowhere more than on the Campos.

Beyond the Burá Crest begins a yellow descent, rough with gravel, soft laminated clay-slate, and porous iron-stone, like slag

* Translated "Bosque." In the dictionaries Ressaca or Resaca is the French rissac, the back drag of the tide.

† The first is the Córrego da Rissacáda, which at times swells and is dangerous; the second, an unimportant feature, is known as the Córreginho—the streamlet.

‡ The Blackwater River, from "Para" and "ana."

§ St. Hil. (III. ii. 103) derives the word from Tapanhúna, which he says in the Lingoa Geral means black; the latter, however, is Pixuna, Pituna contracted to Una. The dictionaries give Abá (man) tapýñhúna or tapýñiuna contracted to Tapanhúna or Tapanho, meaning a negro, and "acánga," a head.

or laterite. This leads to the "Cerradão," a *taboleiro* or plateau, about four miles in length; at first something sterile, but presently becoming a rich red soil with fair vegetation. The grass is the *Capim-Assú*, whose grain, often compared with rice, keeps cattle always fat, and amongst the dwarf woods are Palms in abundance, the *Licorim*, delicate, with ragged leaves,* the *Indaiá*,† and the *Coqueirinho do Campo*, which rises but little above the ground. The plateau ends at the *Olhos de Agua*, where a few huts gather near a *Córrego* that supplies pure water. Below us, to the right, lies the *Paraúna*, a dull dark (*turvo*) stream, running in snowy sand, with banks of white clay.

After three hours we reached the wretched little *Aldêa de Paraúna*, on the left bank of its river. It has a single straggling street of some seventy mud hovels, including one large open *Rancho* and eight *Vendas*: most of the tenements are tiled, few are whitewashed, and many are in ruins. On the right bank are six huts and a tiliary. This old Indian settlement was once rich in gold, it flourished in the days of the "Diamantine Demarcation," which here began: in 1801 it was an *Arraial*, with most of its houses shut or fallen, and tenanted by a guard to prevent precious stones being smuggled. It lives now upon its excellent-stapled cotton, which fetches 2\$500 to 2\$800 per *aroba*, and by supplying travellers. The people are famous for their churlishness, possibly the effect of the moody Indian blood, and a curious contrast to those further on. As we found no civility at the house of a *Caboclo* shopkeeper, by name *Sr. Tóttó*, we rode up-stream to the little *Fazenda do Brejo*, an *Engenhoca* (small sugar-house) belonging to *Manuel Ribeiro dos Santos*, better known as "Manuel do Brejo," Emmanuel of the Marsh. When unable to visit it, I heard of a place called the *Brejinho*, where there is a salt stream that might be utilized.

The *Paraúna*, whose mouth we shall presently pass, drains the

* The *Licorim* palm must not be confounded with the *Aricuri* (*Cocos coronata*), which is common along the coast latitudes. It grows twenty-five to thirty-five feet high, with foliage like the true *Cocoa*-palm; the fruit hangs in bunches, and each nut is covered with a deep yellow and sweetish pericarp. The *Macaws* are fond of these *Cocos de Licorim*, and break the kernels with their powerful beaks.

† Also written *Indaja*, and in places

pronounced *Andaiá*. Prince Max. calls it *Coco Ndaïã assú*, and describes it (ii. 30). On the coast range and shore we may truly say of this *Attalea compta*, "l'arbre est majestueux; c'est un des plus beaux palmiers dans ce pays." On the *Campos* it is a stunted growth, almost without bole. The leaves are not eaten except by the hungriest of cattle; the nut is small and exceedingly hard, with an almond resembling that of the *Cocos nucifera*.

western slopes of the Serra Grande: it is a useless shallow stream, here about 200 feet broad, full of rapids and choked by drift wood: the banks are of hard, white, rain-guttered clay. The valley, a flat of red and grey silt, edged by gravel and stones, is narrow, and the lower vegetation at this season is browned by the burning sun. The hill tops preserve their black verdure, whilst the flanks are yellow, and dark clumps are scattered about them. The ferry is six leagues by water, or four to four and a half by land, from the Barra or Embouchure into the Rio das Velhas. In opposition to the map-makers,* all assured me that the Cipó stream, which is fed by the Serra da Lapa, falls into the Paraúna, one league by water, or one and a half by land, above this village. Eight leagues up-stream from the Ferry is the Arraial de Paraúna, a place of no consequence. In 1801 Dr. Couto declared that the Paraúna and its branches, as well as the Pardo Major and Minor, in fact all the waters from the Great Serra, would prove diamantine. This has lately been shown to be the case, and there are now washings at the confluence of the Cipó with the Rio das Pedras, near the south-west corner of the Rotulo estate.

The ferry here belongs to Colonel Domingos, who lets it for 600\$000 per annum and free passage for his tropas; the toll was not tollendus, being only 0\$500 for five mules and four men. After the riverine valley on the right began the usual ascent, winding round and up hills, whose tops and bottoms are earth, whilst the sides are almost invariably ribbed with bare rock, ledges of white grit, smooth as marble, and scatters of dark blue sandstone.† These strike to the south-west, and are raised at angles varying from 25° to 80°, giving a peculiar and new appearance to the scene. The ascent of such places, often made worse by tree-roots, is troublesome enough; the descent is still more disagreeable.

From the crest of this dividing ridge, the Black River, still in its snowy bed, showed the Cachoeira do Paraúna, with three distinct flashes down a rock wall, backed by the Nigger-head Hill. The vegetation, like the pure white sandy soil, was a

* Burmeister is one mass of confusion. M. Gerber makes the Cipó join the Paraúna close to the Rio das Velhas, and calls the Junction "tres barras," the three embouchures.

† To avoid this sandstone break, a road, or rather a path, has been laid out to the left, up a brown dusty hill, not yet worn down to the stone, and at present offering a little shade.

detritus of new "Itacolumite." For the first time in the Brazil, I saw the Canelas de Ema, "Shank bones of Ostrich," the Vellozias,* or tree-lilies, peculiar to these uplands.† They take the place of the heaths so common in Europe and Africa, and of which Gardner remarks, "not a single species has hitherto been detected on the American Continent, either South or North."‡ It is, like the tree fern, the bamboo, and the Araucaria, an old world vegetation, suggesting the Triassic encrinitis, whilst the leafage was that of the Dragons'-blood *Dracæna*. The field showed all sizes, from a few inches to ten feet, the rough endogenous stems, mere bundles of fibres, were quaintly bulged with abundant articulations, like those of a polypus. This part of the plant contains resin, and the soft, high-dried substance is prized for fuel where wood is scarce and exceedingly dear. On the summit of each quaint stem was a bunch of thin narrow leaves of aloetic appearance: as we brushed through them, the mules snatched many a mouthful. In the centre of the foliage was the lily-like flower, with viscid stalk, quadrangular calyx, and blue and yellow stamens. There was a smaller variety showing lavender-coloured blossoms, which the people called Painera. This must not be confounded with the *Paina do Campo*, or *da Serra*,§ from whose fibres are made horses' saddle-cloths: it is probably the *Composita* named by Gardner, *Lychmophora Pinaster*, a narrow-leaved, stiff shrub, rarely exceeding six feet in height, but much resembling a very young fir, and giving a decided feature to the peculiar vegetation of Minas. It will be found taller in the upper levels. The *Carahyba do Campo*, with tortuous branches easily formed into yokes, lit up the scene, as if points of gamboge had been scattered over it: the naked form contrasted curiously with the well-clothed *Mimosa Dumetorum*, one foot high, bearing a flower here pink, there white, ten times larger than proportion requires, and

* So named from Dr. Joaquim Vellozo de Miranda, Jesuit and botanist, born in Minas Geraes.

† They flourish, I believe, on the Serra de Ouro Branco. We shall find them again on the middle course of the São Francisco River, where they clothe the western counterslopes of the Bahian "Chapada."

‡ I need hardly say that such is no longer the belief of botanists. Australasia alone has *Epacrids* instead of heaths.

§ St. Hil. (III. i. 247) mentions the "Paineira" do Campo (*Pachira marginata*), whose bark is scraped for bed stuffings. I also heard the name *Paina do Cerro* (or *Serro*) applied to a palm which extended over the higher levels as far as the end of this trip. The trunk is thicker above than below, the general aspect is that of a huge Sago, and the leafage, which resembles the *Indaiá*, is useful for making hats.

with the pink, white, and scarlet tassels of the Cravinho do Campo, a shrublet whose root is a wild purge.* The people declare that Arnica is found in the uplands:† all know the medicine, none its plant.

Early after noon I descended the white hill into a red hollow, which grows a little coffee, sugar, and plantain fruit for the household. This is the place called Riacho do Vento—Windy Stream—a clean and well-wooded stream, flowing from the north. A certain João Alves Ribeiro was increasing his ranch, and the ground was strewed with timbers of the Aroeira, an Anacardium of several species: the heart was mahogany-coloured, and harder than any oak. The reception was not splendid, a tray turned up served for a table, a quarter-bushel measure for a chair, the food was as usual, and the dessert was snuff, either the coarse Rolão or the finer Pó de fumo. En revanche the bill, including breakfast and civility, was only 6\$000.

I soon found out why my “Camarade” had dissuaded me from sleeping here. At sunset the east wind began to blow great guns, threatening to carry away the tiles—truly the place justifies its name. According to accounts the infiction is milder during the first and second quarters; it sets in violently with the full, and is most dreaded at new moon. It comes from the high and bleak meridional range to our right, and easily accounts for the regular morning gale on the Rio das Velhas. There was no “pasto fechado,” and these “taboleiros” are proverbial for causing mules to stray: ours began locomotion at once, and were not found until sundown. They were necessarily tethered for the night in an empty ranch, and the tinkling of their bells proved that they were starved. Nor were the men better off.

We were glad to mount at 6 A.M., though the gale still howled overhead, and the stars were twinkling over hill tops, clearly cut and silver tipped. Crossing the Windy Rivulet, we struck up the Serra da Contagem,‡ or Range of the (diamond) tolls. This off-

* Probably a Myrtacea: of this genus several are called Craveiro da terra—native clove-tree.

† The Brazilians mostly mistake for Arnica a Composite known to us as Eupatorium Ayapana.

‡ These Contagens were established with

the consent of the lieges in 1714, when, it will be remembered, the capitation-quints were raised. Dr. Couto tells us (1801) that the Villa do Principe was one of the four “Contagens dos Sertoês,” and says, “they call Sertoês in this Captaincy the inner lands distant from mining villages,

set from the Espinhaço runs from east to west, and acts as buttress to the Rio das Velhas. Our course was to the north-east, and we wound from side to side with the blast catching our ponches, and doing its best to blow down man and beast. Three ascents, not precipitous, but rough with rolling stones, and mostly using the rocky beds of streams, led to the summit: they were divided by dwarf levels (Chapadinhas), scattered over with grass and trees: in places water-sank, and during the rains transit must be desperately bad. The soil was mostly red, set in patches of glaring white sand, the detritus of the rock; in some places it was blackened with vegetable humus, in others it sparkled with pebbles and fragments of quartz. There were slabs and sheets of the white gritty Itacolomite, yesterday so abundant: in places long ridges crossed the path like the rock-walls that form a Cachoeira, and nothing could be quainter than the shapes: here they were gigantic frogs and “antediluvian,” *i. e.* Tertiary beasts, Megatheres and Colossocheles, seen in profile; there were magnified tombstones, erect or sloping, and there were fragments pitched about as if in the play of giants.

After two slow miles up the south-western crest, we reached the highest Chapada, and saw for the last time the plain behind us, billowy with endless tossing of green-yellow waves. Here the rocks and crags disappeared, and the compound slope was bisected from north to south by As Lages, a tree-clad stream, running over a bed of smooth slippery slab—an “ugly” spot; nor much better were the ribs of fast or loose stone on the farther side beyond a patch of rich ferruginous soil. On the right, a charming Capão, which seemed to be traced by the hand, divided shade from sunshine; whilst cattle, with clean hides, browsed the juicy

and where there is no mineration.” Under it (Memoria, &c. p. 89) were,—

Caité (Caethé) Merim, with annual revenue of	766 \$ 400
Ribello	781 \$ 187
Inhacica (on Jequitinhonha River)	436 \$ 887
Pé do Morro	452 \$ 713
Contagem do Galheiro (of antlered stag) to south	1:146 \$ 437
Total	3:583 \$ 624

The profits of all four were but 5:446 \$ 562 (say = £544), without deducting the ex-

penses of barrack-repair, changing posts and so forth. The author justly ridicules a system which, for such paltry gain, did so much harm. Those who farmed the Contagens cared only for locating them where they paid best; when a new mine was discovered they surrounded it with a belt of obstacles, and thus they lost all,—like the husbandman who harvests before harvest-time. Of course the toll-gates should have been confined to the frontier, and collected from the imports; not inland where imports paid twice, or where dues were taken from those who had bought country-made goods.

pasture.* We then crossed a divide running east to west; the path was broken, and near it was a rib or dyke of dark stuff, which after rude testing appeared to be cobalt. The crest leads to the adjoining Limoeiro Basin, a formation similar to that just traversed, and cut by three waters flowing to the south-west.†

Two hours of dull riding placed us on the eastern edge of the Chapada, where the view suddenly changed. From our feet fell a long slope, or rather two slopes, a big one and a little one, of velvety surface, curiously contrasting with the hedgehog rocks around. At the base was a gleam of water flowing to the north-east; we are still in the valley of the São Francisco River. Below us, somewhat to the right, is a clump of oranges, spiky pitas and wind-wrung bananas, showing where stood the old Contagem das Abóboras, now desolate as the Inquisition of Goa. Further down is the Bocaina, or Gorge, seen from afar; on the right the Alto das Abóboras, and to the left an unnamed lump, form the huge portals of the lowland-gate. Masses of white sandstone, in places weathered to dingy blackness and queer shapes, and swept clean of everything by the wind, strike to the west, where they stand up in bluffs like river cliffs: the dip, from 70° to 90° , gives a quoin-like aspect, whilst the eastern backs are of gentle slope, frequently grass-grown. Scattered about are knobs, heads, walls, and saws, a peculiarly wild and hard aspect, and we look in vain for any correspondence of angles. Here Minas, always hilly, becomes extra-mountainous; and writers declare that the formation, generally arenaceous, turns to quartzose. In front are the distant lowlands, apparently plains dotted with dark hills, but really without half a mile of level, and the furthest distance is another line of fantastic rocks.

We now enter the true diamantine land, which older writers term the Cerro formation, thus distinguishing Diamantina of Minas from the diamond grounds of Bahia and from Diamantino of

* I saw no sign of the berne or worm. No one, however, breeds, and consequently the herds are small.

† The first is the Pindahyba, a muddy led into which mules sink even in the "dries." An unpleasant path of white sandstone, with a pole serving as parapet to a precipice, leads to the Riacho da Vareda. The latter word here means a "Campina" or dwarf plain. The stream,

coming from north to south, courses cold, dark, and clear over a rocky and slippery bed of sandstone, and on the left is a place where the tropeiros encamp. The third is the Limoeiro, dark and muddy, with a dense Capão a little beyond it. As a rule the water is of the best, a "pure vehicle for forming the finest crystallizations." In some places a white sand is spread over the black mud, reversing the usual process.

Matto Grosso. The view strikes at once. It is a complete change of scenery; everything is the image of bouleversement and aridity. The hills are no longer rounded heaps of clay, grown over with luxuriant vegetation. Here we have a dwarfed and pauper growth springing from the split rocks, a mean Campo flora, or yellow thickets based upon scanty humus, and even the hardy Coqueiro becomes degenerate.* It is a fracas of Nature, a land of crisp Serras stripped to the bones, prickly and bristling with peaky hills and fragments of pure rock separated by deep gashes and gorges; some rising overhead black and threatening, others distant with broken top lines, with torn blue sides, striped with darker or lighter lines. Here and there, between the stern peaks, lie patches of snow-white sand or a narrow bit of green plain, confused and orderless, a fibre in the core of rock-mountain. The land also is illiterate, and it is wild; fossils, those medals of the creation, do not belong to it.

After the first view of this country, and inspection of its material, I felt how erroneous was the limitation of the old men who confined the diamond to between 15° and 25° of north and south latitude, thus including Golconda, Visapur and Pegu, and making Borneo and Malacca the only Equatorial diggings. I at once recognized the formation of the São Paulo Province, in which many diamonds have been found.† My little trouvaille was that we may greatly extend the diamantine, as we have the carboniferous strata, and that the precious stone will be found in many parts of the world where its presence is least suspected, and even where the ignorant have worked the ground for gold.

But when, returning home, I looked at my newspapers, the trouvaille had been made for me. In one I read, "There are fifteen localities in California at which diamonds ‡ have been found in the course of washing for gold." The *Melbourne Argus* declared that "a small but very beautiful diamond had been found in a claim at Young's Creek, near Beechworth: the stone is perfectly white, and the crystallization well defined. It is the

* When clothed with sufficient humus, degraded Itacolunite is a very fertile soil.

† M. Barandier, a French artist, found a small diamond at Campinas in São Paulo. I have seen the "formação," or stones supposed to accompany the gem, in many parts of the Province, in the valley of the Southern Parahyba, and even near the city of São Paulo. A fine specimen of the

black diamond, perfectly symmetrical, was taken from the Rio Verde, near the frontier of the São Paulo and Paraná Provinces; moreover the Tibagy and other influents of the Paraná are known to be diamantiferous, and have supplied small specimens set by nature in the Canga rock.

‡ The "California diamond" was formerly a bit of rock crystal.

second diamond found on that Creek. Again, the *Colesbery Advertiser* recorded the discovery of a diamond digging on the farm of Dr. Kalk, and asserted that some gems had been washed worth 500*l*.*

Old Ferreira, my comrade, used very hard words as he passed the ruins of the Contagem das Abóboras, which he called the Contagem do Galheiro.† The senior was a kind of Mr. Chocks, exceedingly grandiloquent till Nature expelled Art; he would call heat a “temerity of sun,” rich ore a “barbarity of iron;” he told me to “charge to the right,” meaning to take that direction; when uncertain he declared that “it did not constate,” and when he ignored a thing, he was “not a great apologist of it.” But, if tradition do not mightily exaggerate concerning the “days of despotism,” as the colonial rule is popularly called, his bad language was justifiable. The soldiers and their commandant who occupied yon stone ranch, now ruined, held all the passes and watched the neighbouring Córregos, the only zigzags up which the Garimpeiro or smuggler could travel. Travellers were searched, and muleteers were compelled to take to pieces the pack-saddles where treasure might be concealed. Extreme cases are quoted. Men who bathed in the diamond rivers were flogged, and those found washing in them lost their hands. The tradition here is that the obnoxious system was abolished by D. Pedro I., that popular prince having accidentally, when disguised à la Harun El Rashíd, learned from a mule-trooper all its evils and injustice.

From the white soil we passed to a wave of reddish yellow ground, the “Mulatto” of the Southern States, and took the left of the huge portal on the right. The descent was gentle, but at the bottom came the usual troubles—tree stumps in the ground, holes whence roots had been drawn, banks up which the mules had to climb, a red soil forming puddle during the rains, and black earth even now a rivulet. We met a few mules about 9 A.M. Here the cold prevents an earlier start. Some carried for sale in the backwoods “Pedras de forno,” round slabs of white Itacolunite, 2½ feet in diameter by 1 inch in thickness. For drying manioc

* When travelling in Virginia, I had heard of a true diamond picked up near Richmond; it weighed some twenty-four carats and cut to about half, and was sold for a small sum as it wanted “water.”

† The Galheiro is to the north on the

Rio Parulo Grande, six to seven leagues north of the Rio Paraúna. There is now a Fazenda do Galheiro, which belongs to many owners; it is drained by the Riacho do Vento,

they are preferred to metal pans or plates, because they cost 3\$000 to 5\$000. The manufacture is easy. They are prized up with levers, chipped into rounds or oblongs, and are ready for the oven. For convenience of carriage they are sometimes divided into semicircles. The quarry was shown—a mere dot on the hill side, a drop in the ocean that could supply all the Empire. Fine heavy soapstone is found in the torrent beds, and 1\$000 procured for me a specimen in the shape of a candlestick.

Presently we reached a miserable hamlet of tattered wattle and dab huts, called Camillinho—little Camillus—after some “regulo da roça” who first settled there. An honest *Rancheiro*, Luis Monteiro, lodges man and beast. In his absence the wife gave us coffee and food, whilst the mules were sent to a good closed pasture hard by. Around the huts, which were *jealousie*-closed towards the road, and swarming with hens, pigeons, and black girls, grew a few coffee trees and wind-wrung bananas, whilst a single rose, which had learned to be a creeper, curled over a thatched roof.

From Camillinho we took a north-easterly course between two lines of rock. The soil appears to be always red clay upon the hill tops, with stony and ribbed sides, which sometimes throw lines across the road, and white or yellow tints in the lower parts. The huge *Esbarrancados* are here a mixture of water-breach and sun-crack; in places they cut up the country and cut off the roads. They are mostly elongated crevasses, whose projecting and re-entering angles correspond. Some form central islets, like St. Michael's Mount in miniature. The favourite site is the side of a hill, which will inevitably be eaten away, and often they moat the heights like the ditches of Titans. The old formations are known by their tarnish, and by the growth of trees in the lowest levels; the new are fresh, and generally bottomed with mud or flowing water. The whites and reds, yellows and purples, are lively as in other parts of the Province, and the feature is picturesque with light and shade, especially at times when the sun lies low. At first sight they suggest artificial models; the brilliantly coloured sections which are supposed to represent the earth's interior. We find even the “faults” and “dykes” which restrain percolation.

The line ran over sundry waves of ground, and wound round the hill sides, white with their small, loose, glaring stones. The descents and ascents were both bad, and led to and from waters

either grey-coloured or crystal clear, flowing to the right, that is to swell the Paraúna River south-west. The huts appeared temporary, like mining villages, and here and there a manioc patch shows the capability of the soil. I presume that in many places the land would bear the short and strong-stemmed hill-wheat of Texas. The cool and shady wooded bottoms swarmed with the Carrapáto tick, and it was found advisable to send a man forward by way of "drawing them off." We are now approaching spring-tide, and the tints are prettily diversified. The pink Quaresma, dwarfed by cold, hugs the damp places near water; the golden Ipé, that local yew, also small, prefers the stony upland. In the hollows there is a flower that reminds me of the purple Aster. The stripped trees project their grey lean limbs against backgrounds of lightest-green, middle-green, and darkest green, and everywhere the bush is red, burnished with the new leaves of the Páu de Oleo,* a leguminous celebrity which prefers dry grounds and shuns stagnant waters.

The birds seem to be less bullied here than in most other parts of the Province. I saw for the first time a peculiar pigeon which extends down part of the Rio de São Francisco, and is found in the Highlands of Bahia. The people call it Pomba Verdadeira, or de Encontro branco, from the white marks on the wings. It is probably a variety of the *Columba speciosa* found on the seaboard, and its marbled neck and superior size suggest our blue rock. It looked like a giant by the side of the Pomba Torquaz,† the largest of the many doves (Jurity, Róla, and others) which inhabit

* "Oil-wood," *Copaifera officinalis*, also written *Copahyba*, *Cupaúba*, and in other ways. The Caramurú (7, 51) describes it as,—

A Copaiba em curas applaudida—

"Capivi which oft works a certain cure."

The Indians, who knew the medicine well, collected it in sections of nuts, corked with wax, and during hot weather it used to sweat through the rude bottle, proving its excessive "tenuity." In 1787, according to Ferreira, a pot of nine Lisbon canadas (each two litres) cost 6\$000 to 6\$400, and "Capivi" was considered to be an important importation, having credit for many pseudo-virtues. Painters used it for linseed oil, but not in places exposed to weather, as it easily came off. Here it is sold in the shops, but it is held to be a

very violent remedy, and mostly confined to the treatment of cattle sores. The season for collecting the precious balsam opens with the new moon of August; the people say of the tree "Chora" (it weeps like Myrrha) "tudo o mez de Augusto," and a single trunk fills several bottles. The bark is cut, and pledgets of cotton are placed to drain the slit; the people have an idea that the greatest yield is when the moon is full, and that it gradually falls till the wane.

† The word is the Latin "Torquatus," and alludes to the ring round the neck; the vulgar corrupt it to Trocaes, and thus we find it written by Prince Max. (i. 396). Amongst the uneducated in the Brazil the unfortunate letter *r* is subject, amongst other injuries manifold, to excessive transposition.

these highlands. The Raptores are unusually numerous. There is the Caracará, which ranks with the eagles, and behaves, the degenerate aristocrat, vilely as a buzzard. A vulture (*V. aura*), probably the *Acabiray* first described by Azara, is here called *Urubú Caçador*, or the hunter. It resembles in form the vulgar bird, but it flies high. The head is red, and the wings are black with silver lining, like the noble *Bateleur* of Africa. Prince Max. (i. 75) makes the bird's head and neck to be *gris cendre*, which is not the case; he also guides its distant course by smell, which I vehemently doubt. Another hawk, known by the general name *Gavião*, poises itself in mid air, and is said to be a game bird, self-taught to follow and kill the *Cadorna*, or local partridge. If so, there would be no difficulty in training it. There is also a tiny raptor, hardly larger than a sandpiper. The first swallow seen during this year darted by in search of a warmer climate. The *Scissar-tail* (*tesoura*)-turns sharply in the air, opening and shutting its forked tail; the pretty white and black *Maria Preta*, and the crimson *Sangre de Boi* or *Pitangui*, disported themselves amongst the stunted trees; while John Clay (*João de Barros*) hopped chattering before us as if he had some secret to tell, and the *Tico-tico*, tame as a robin, flirted with us like a little girl. At times the sharp stroke of a file upon a saw, sometimes singly and sometimes in quick succession, was heard. We recognised the voice of the bell-bird,* which has lately been introduced to England.

Ascending a slope after an hour's ride, we found a fresh change of scene. To the right, in a low, flat green bottom by the banks

* A drawing of a specimen which reached England lately appeared in the *Illustrated News*. It is the *Campanero* or bell-bird described in the last generation by Water-ton, who makes its voice audible "at a distance of nearly three miles." The *Chasmorhynchus nudicollis* is popularly known as *Araponga*, a corruption of *Guiraponga*, from *Guira* a bird, *pong* onomatopoeic, and *-a*, what exists. St. Hilaire (III. i. 26) derives it from *Ara*, day, and *pong*, "son d'une chose creuse." He warns us not to confound it, like Mr. Walsh, with the "ferrador" or blacksmith frog, and, curious to say, for once Mr. Walsh is right. The *T. Dict.* explains *Guiraponga* by *ferrador-ave*. Castelnau mentions the *ferrador* bird (i. 274) and (in i. 169) the *ferrador* frog, which Prince Max. (i. 269) calls *Ferreiro*.

The *Procnias* (a genus formed by Illiger,) is called *nudicollis* from its thin green-patched throat, so conspicuous in the snow-white plume. It has no caruncle like the bird figured in the illustration to "Kidder and Fletcher," (edition of 1857) and called *Uruponga*; the bird with a tubercle is the white *Cotinga*, named *Guiraponga* or *Ampelis Carunculata* (Linn.). Prince Max. has described other species of this remarkable family, as, *e.g.*, the *Procnias melanocephalus* (i. 260), and the *Procnias Cyanotropes* or *ventralis*, with blue green reflections (i. 291).

The peculiarity of this winged *Stentor* is the disproportion of the note to the size. We hear the blow of a hammer upon an anvil; we see a creature about the size of the smallest turtle dove.

of the Ribeirão do Tigre, another influent of the Paraúna, lay houses and dwarf fields; on the hill side was a tall black cross in a brand-new enclosure, a cemetery lately built, and already in active use. Around was a kind of prairie, high and subject to fierce winds, as the dwarfed Bromelias and the stunted Vellozias proved: the grass was thick but brown in the upper levels, and of metallic green below, suggesting fine pasture. The surface was pitted with termitaria, of which many had been mined by the Armadillo: mostly they showed annexes of a darker grey, clumsy projections like modern additions to some old country house. The prairie fires produced a dull glow in the sky, and the smoke folds crossing the sun had the effect of a cloud, and in places cast shadow upon the face of earth; we blessed the beneficent gloom. Far to the north-east lay our destination, Gouvêa—we are now about half-way—pointed out by its road, a red-brown ribbon spanning the sunburnt turf. To its left rose a massive, lumpy peak, streaked with horizontal wavy lines: on the right towered a cloud-kissing point, which some called Morro das Datas, and others Itambé.* The horizon in other places was bounded with bluff cliffs, which seemed to buttress an immense imaginary stream. Here and there was a “Pilot-knob,” with strata regular as if built up, but defying human hands to build it.

The hill sides here showed traces of ancient leats, and heaps of clay stone grit which they had helped to wash. Within the Contagem all the soil is reputed to be diamantiferous, and the people delight to tell you that you may be treading upon precious stones. This, indeed, appears to be their thought by day and their dream at night. The surface was still disposed in waves, with abrupt inclines of red and yellow ground, deeply gashed, leading to three several waters,† which are struck perpendicularly. The watershed is from north-west to south-east, discharging to the Paraúna River. Mostly they are bright little streams, painted

* Ita-mbé, the big stone or rock. St. Hil. (l. i. 294) proposes as derivation, yta ayambe, pierre à aiguiser. There are two features of this name, as will presently appear.

† The first is the Agoa Lâmpa, on whose left bank rose a tall cliff, black as if volcanic—the effect of grass burning. Further on to the right is a silvery lakelet, containing a knobby islet. The Ribeirão das Areias spreads out wide, and has a rough

bridge of eight trestles, some sixty-three yards long; at this season it is fordable. The Ribeirão das Almas showed a thread of pure water running along the main current, which had been made a dirty slate-coloured drain by washings in the upper bed. The soil is mostly red as if rusty with oxide of iron; it is fertile and produces oranges (remarkably good) and Jaboticabas, besides the normal coffee shrubs and bananas.

pink-red with iron, and set off by golden sands and avenues of leek-green trees. In the dwarf riverine valleys and the hill-sides were fields and huts, some of them tiled, and near the Areias a venda was being built.

We met on the way sundry parties of women coming from some local festival, a few whites, dressed in straw hats and rainbow-coloured cottons, with blacks carrying their children. They did not, as in many places, run away, and the tropeiros were unusually civil, seeing that I was still a recruiting-officer. The last divide led to the *Córrego do Chiqueiro*—of the Hogstye*—which is deep and dangerous during floods. We are now one league from our night's destination, and presently, after a long ascent and a leg to the east, we saw over a dwarf peak the conspicuous church of Gouvêa.

Women, all with the Caboclo look, carrying wood, entered with us as we passed the Cruz das Almas, which rose from a pile of stones. This cross, which recalls the souls in Purgatory, is here general. On the hill to the right was an unfinished building, N^a S^a das Dôres, undertaken by the vicar, Rev. P^e Francisco de Paula Moreira, and Sr. Roberto Alves, Jun., the son of a wealthy family. I thought that the grim, stone building, with what appeared to be a single chimney, was a fort raised for some inexplicable purpose; and it reminded me of the old Portuguese fane—

“Half church of God, half castle 'gainst the Moor.”

We passed the Rosario, a detached chapel with a single palm tree, and rode northward, up a street of ground-floor houses and open Ranchos, each with its frontage of stakes towards the square, which apparently represented the town. After the sunny ride, and the high wind, which promised a cold night, I looked wistfully for a lodging, and saw none. Presently my guide remembered Dona Chiquinha, the wife of a Diamantina merchant, now at Rio de Janeiro: his name, Elizardo Emygdio de Aguiar, is written as pronounced by his friends, Elizaro Hemedio. Here began the civility of which I afterwards experienced so much in this part of the Province. The Dona at once admitted me, her

* A poetical name not rare. Near Ouro Preto is a place called N^a S^a da Conceição do Chiqueiro do Allamão (for Allemão).

—Our Lady of the Conception of the Hogstye of the German.

married daughter brought oranges, her little granddaughter orange flowers, and her slaves coffee.

I presently walked out to view the place, and to escape being a menagerie. The people stared like the negroes of Ugogo: they could hardly gaze their full; they would, when tired, rest awhile, and presently take another "innings." The operations of shaving and of using a tooth-brush seemed to produce a peculiar edification. North of the town stands the chief church, Santo Antonio, occupying part of the square, which is rather a bulging in the street. It stands awry, having been built probably before Gouvêa was founded; it fronts south-west, unpolitely presenting to Jerusalem its dorsal region. On each side bits of Calçada line the red soil, and these incipient pavements lie here and there. About it are a few Casuarinas and Coqueiro palms, at this season, they say, always mangy; they feed a large caterpillar (lagarta)* which presently becomes a "borboleta"—moth or butterfly—after which they recover. The square shows one sobrado, belonging to João Alves, amongst the sixty-four houses east of the church: the fifty-eight to the west have sundry half-sobrados, and all the better sort are distinguished by shutters painted blue. The holy building is crooked from cross to door, apparently the people's eyes cannot see a straight line: it has four windows, and two weather-cocked towers, with roof covers upturned: there are two bells, and the eastern belfry has a bogus clock. Behind the temple is the God's acre, quaintly adorned with corner-posts of blue plaster, supporting rude and rusty armillary spheres.

The town is on a rough ridge, and water is scarce and distant. On the east, far below, lies the usual Lavapés: nearer is the Rua do Fogo,† a kind of chemin des affronteux, and in the distance is the Morro de Santo Antonio, a noble stone-knob based upon an earthen pedestal. No one has ascended it, yet it may be easily climbed on the south-east. Westward is the Rua do Socego or dos Coqueiros, with a few houses scattered and whitewashed, in compounds defended by dry stone walls. The growth is the Castor shrub, the Jaboticaba, the papaw, whose leaves are here

* The *Curculio palmarum* is relished in Africa, and greedily eaten by the S. American "Indians." I have never tasted it, but white travellers have informed me that it has a delicate and even a delicious

flavour.

† The Street of Fire, not an uncommon village name in the Brazil, usually meaning that in it liquor and consequently quarrels abound.

used for soup, the plantain, a few good oranges, and the sweet lime with bitter placenta, called *Lima da peça*: the coffee looks thriftless and starving, as usual it is crowded and untrimmed. Provisions are excessively expensive, having to make the journey which we have made, and maize* costs 4\$000 per alqueire.

On the next morning, when I called for the bill, the Dona refused everything, even a gift; such was her hospitable habit, and she declared that her sons also were wandering over the world abroad. We mounted at 7 A.M., a light east wind rising with the sun, whilst the sky was moutonné with clouds. Our course lay north-east towards the pyramids of dull grey stone, the smaller below the larger, and both sentinelling the richer diamond lands. A slippery hill, gashed with water-breaches, led to a wooded hollow, which sheltered a few thatched huts; to the right was a *Sítio*, belonging to Roberto Alves. It had outhouses, enclosures, and a coffee plantation, somewhat thin, but defended from the blasts and superior to all rivals.

Here began the *Pé de Morro*, or ascent, which will last till near Diamantina. The wheel-road winding round the western side is easy: the bridle-path to east seems made for goats, with its loose stones and its ruts petrified in hard pink clay. Presently the latter fell into the former line, and the slope improved. From the summit we had a good back view of *Gouvêa*, but soon the wind, chopping round to the north, drifted in our faces a thick Scotch mist. Old *Ferreira* complained that the *Corrubiana* † got into his bones and nearly made him lose the way.‡

The hill led to a plateau consisting of two plains divided by a water and a prism of rock. One of them was about two miles across; such an extent of level surface is here rarely seen. Cattle fine and plump, despite the *Carrapatos*, and probably strengthened by the highly ferruginous water, made it look like “a pastoral in a flat.” The *Capão*, however, was not of the style “*bonito*,” §

* In this country the alqueire of maize regulates prices like the quarter loaf in England. I have seen it at São Paulo, the city, fluctuate between 2\$000 and 4\$000 — more exactly between 1\$940 and 4\$160.

† This word is popular in Minas Geraes,

and also, I believe, in Rio Grande do Sul. Some *Caipíras* pronounce it “*Cruviána*.”

‡ On the right hand a road sets off to *Datas*, the property of Colonel *Alexandre de Almeida Silva Bitancourt*; it reaches the city, but after a very long round.

§ The “pretty tree motte” is often seen

it was coarse and ragged, whilst the land was much burnt. The road became excellent, broad, level, and fit for a carriage : unhappily, like that approaching Agbome, it is a mere patch.

At 9 A.M. we descended to Barro Preto, the first diamond digging which I had seen at work. The site is a stream bed, the head-waters (Cabeceiras) of the Córrego das Lages, which feeds successively the Córrego das Datas (or the Cachoeira), the Córrego da Grupiára and the Paraúna River. The surface showed spoil-heaps of "saibro," clayey sand, varying in colour from dirty white to milky white, like the detritus of quartzum lacteum, turfy and vegetable matter, and pebbles mixed with fragments of rock crystal. A little thread of muddy water trickled down and served the "Serviçoso."* We passed two huts and a half of thatch-wattle and dark-grey dab, whence the negroes stared, the dogs barked, the pigs grunted. The place, known for two to three years, has been worked during the last eight months by João and Manuel Alves, the sons of a centagenarian. It is said that they have several diamonds exceeding two oitavas (say each = 280l.), and there are vague rumours of a large stone which is kept a profound secret. In these diggings all is mystery, and not without reason ; an exceptional diamond generally counts in the wild parts at least one murder.

Pushing across the sterile diamantine land, where the wind-wrung trees acted as anemometers, I again remarked the fantastic forms of the sandstone, especially on the north-east, whence the weather comes. Here were watch-towers and pyramids, there were walls which no Cyclops could have raised ; now we passed peeled skulls, then mouldering bones. Between them the surface was mottled, sand-patches white as kaolin, or stained with humus and soil, yellow, purple, and dull crimson with ochre and hæmatite, dotted the expanse of warm-red brown land ; the latter was comparatively fertile, and clothed with black ashes, from which sprouted grass of metallic green, spiky as a stiff beard. The expected eclipse came on, the sun diminished to a crescent, but the mist was so thick that the effect passed away almost

in the Province of São Paulo, where the grass, like the nap of yellow or green velvet, sweeps up to the clump, which is of tall and regular growth.

* A small Serviço. The latter is an old name still applied in Minas Geraes and Bahia to diamond washings worked by a tropa or slave-gang under free-men.

imperceptibly. No one paid any attention to it, nor would they

Si fractus illabatur orbis ;

not because over-just or tenacious of things proposed, but from mere incuriousness. Old Ferreira, it is true, remarked that it might be the cause of the "confounded *Corrubiana*," * but then, he could think of nothing else.

Still ascending, we crossed three waters flowing to the westward, † and divided by bulges of ground. Near the first was a clump of huts and signs of industry. A rough "Báco," ‡ or three-sided trough of planks and sandstone-slabs, awaited the rains to wash the heaps lying near it. After four miles of barren soil we made "Bandeirinha," § a whitewashed house, surrounded by a few trees, and a close pasture fronted by an open ranch. Maria Augusta de Andrade, in the absence of her husband, José da Rocha, miner, "merchant," *Rancheiro*, and so forth, rose up shivering and prepared breakfast for us : the south-east wind had blown for five days, and on my return, five days afterwards, I found it blowing still.

Now remained only ten miles. In half an hour we ascended a stony hill of red and white soil. This is the great dividing line between the Rivers São Francisco and Jequitinhonha ; from this point it trends in a northerly direction, bending to the west. On the left was a cross-road leading through the little villages O Guíndá, the *Brumadinho*, and the Rio das Pedras to the Mine of São João. || In front lay a huge brown slope, patched with snowy, glittering, dazzling sand, and here and there growing grass of a lively green : in places there was an abundance of the ground-palm, here called *Coqueirinho do Campo*, dwarfed by the

* Perhaps this was the case. On my return the mist tried to gather thick, but was soon dispersed by the sun.

† The first is the *Córrego de João Vaz*, so called from an old settler whose descendants still gamble in diamonds ; they have seven huts, one neatly whitewashed. It flows to the *Córrego do Capão*, and thence to the *Rio Pardo Pequeno* ; during the rains it is dangerous. The second is known as the *Braúna* (*Melanoxylon Grauna*), a rocky bed with the bulges called *Caldeiroes*, and at this season a trickle of water, which

also feeds the *Córrego do Capão*. A single house is built near its bank.

‡ This trough corresponds with the *canoas* used in gold-washing.

§ Dr. Couto, in 1801, mentions the *Sítio da Bandeirinha*, the little *Bandeira*, or *Commando*. *Burmeister* erroneously writes "*Bandeirinho*." This and *Bandeira* are common names in the Province of Minas, dating from the days of the slaving expeditions.

|| See Chapter 9.

gales. Near the horizon, scatters of tall stone, heads, shoulders, knobs, piles and lumps broke the outline, and far to the right rose the long blue wall which bears the majestic pyramid Itambé.

Presently we passed, on the left, O Guindá, so called from a broad, shallow, and sandy stream, once very rich, and still worked: it feeds the northern Rio das Pedras, the Rio do Caldeirão, the Biribiri, the Pinheiro, and the Jequitinhonha Rivers. It is a miner-town, surrounded by red excavations, and looks from afar like an ant-hill; has a single small square and large black cross, sheds for tropeiros, and decent houses, hugging the left bank of the water. Beyond it is the Brumadinho, a similar settlement, but smaller. Presently we sighted, far ahead, a grim rocky wall, with a white path winding up its darkness; this is the good new road leading to Medanha on the Jequitinhonha River, and thence to São Salvador da Bahia. Crossing the northern Rio das Pedras, a crystal water-babe in a sandstone cradle, I crested a hill, and saw to the east a big white house, garnished with a few brown huts, and standing apparently on the edge of a precipice—the Episcopal Seminary.

Diamantina was within musket-shot, but a long northerly detour was necessary in order to gain the main road. I forded the Riacho das Bicas, so called from an old and rich gold mine on the hill behind the Seminary: this Lavapés flows to the east, and falls into a little Rio de São Francisco, south of the city. The hollows were rich in the large and deeply digitated Aroid with an edible fruit, known as Imbé, or Guaimbé, and in Tupy, Tracuans (*Philodendron grandifolium*). It loves damp places, and has an extensive range between sea-level and 3000 feet of altitude. A stiff ascent—the last—and a line of stunted Araucarias, led to a hill-crest and the usual Cruz das Almas. Here the traveller first sights the city, falling in perspective below his feet. It is a Brazilian “Pangani”—a settlement “in a hole.” The first glimpse suggests—

Dirarum nidis domus opportuna volucrum.

Yet sings of it its local poet, the late Aureliano J. Lessa—

Vês lá na encosta do monte
Mil casas em gruposinhos

Alvas como cordeirinhos
 Que se lavaram na fonte ?
 Qual dragão petrificado
 Aquella serra curvado
 Que mura a cidadezinha ?
 Pois essa cidade é minha
 É meu berço idolatrado.*

* See'st thou upon yon slope of hill
 A thousand houses grouped together,
 White as the yeauling of the wether,
 All freshly bathed in summer rill ?
 And see'st not in far background
 Like to a serpent turned to stone,
 The range in regular curving thrown,
 That walls the little city round ?
 Behold my own dear walls arise,
 The cradle which I idolize.

CHAPTER VII.

AT DIAMANTINA.

CITY DESCRIBED.—SOCIETY.—POPULARITY OF THE ENGLISH IN THE BRAZIL.—
THE DIAMOND IN THE BRAZIL, ITS DISCOVERY, &C.—VALUE OF EXPORTED
DIAMONDS.

“The temperate climate enjoyed by the inhabitants of this part of the country renders them more healthy than those who dwell in the Sertão (Far West); the women are the most beautiful I met with in Brazil.”—*Gardner*, chap. xii.

THE site of Diamantina is peculiar: it is almost precipitous to the east and south-west, whilst the northern part is a continuation of the broken prairie-land. This incipient Haute Ville is the best and healthiest locality, and here the settlement will spread. The “Cidadesinha” runs down the western face of a strongly inclined hill to meet on the sole of the deep valley the Rio de São Francisco, or Rio Grande; its water, draining the lowlands, feeds the main artery of this basin, the Rio Jequitinhonha, distant three leagues in a straight line, and five to six indirect.* The breadth of the torrent-bed, here running from north to south, is patched with red-brown soil and brilliantly green herbage: the middle is white with cascalho heaps thrown up by the old diggers: a mere thread of water now trickles down it, but after rain it becomes dangerous: a dwarf bridge has been put up to save servile life from the frequent inundations. The further side of the ravine is a grim broken wall of grey rock, white under the hammer; the rampart springs steeply from a base encumbered with spoil-banks, washed many a year ago, and is raggedly clothed with grass now brown.†

Viewed from the “Alto da Cruz,” the city has a well-to-do

* The course is southerly to the Southern Rio das Pedras; it then turns by east to north-east, and joins, or according to some, forms the head waters of the great Jequitin-

honha.

† It is advisable to walk up the new Bahia road, which commands an excellent prospect of the city.

and important look. It is much changed since 1801, when as the "Arraial do Tejuco"—the village of the mud-hole,* it had nothing but wooden tenements; nor can it be recognised in the pages of Gardner and M. Barbot,† who described it as it was during the last generation. Below us lies a sheet of houses dressed in many colours, pink, white, and yellow, with large green gardens facing broad streets and wide squares, whilst public buildings of superior size, and a confusion of single and double church-steeple, testify to the piety of the place.

From the Alto da Cruz we make the Largo do Cural, the best building-site in, or rather out of, the city. Formerly cattle were here stabled and slaughtered; now a tall black cross has converted it into a respectable square. Descending the good new Calçada of the Rua da Gloria, formerly "do Intendente," we passed on the left the Sobrado da Gloria, which began life as the Intendency of Diamonds, then became the provisional Episcopal Palace, and now lodges those Sisters of St. Vincent de Paul whom we met upon the road near the Caráça. Inside the carpenters are at work pulling to pieces timber still sound after a century of use: an old-fashioned wooden verandah looks upon a large back-garden of the richest soil, supplied with the purest water. Opposite is the tall sobrado belonging to the Lieut.-Col. Rodrigo de Souza Reis, whose mine we shall presently visit.

The Gloria strikes at right angles a street called, no one knows why, the Macáo do Meio. It must not be confounded with the Largo do Macáo, where stands the Caridade Infirmary, a long, broad, white building belonging to a "brotherhood." The roughly paved Middle Macáo contains good shops, the "Hotel Cula,"‡ and the Church of São Francisco, whose doors and windows are set in a framework of very unpretty streaky red—here a fashionable tint, supposed to resemble marble. A six-faced and two-spouted fountain of Egyptian grotesqueness, set in the wall and dated 1861, begins the normal Rua Direita. "Straight Street" is exceedingly crooked, steep, and badly paved. Most of the houses are new and boast of windows: some preserve the shutter, and one retains the hanging gallery and Rotula or

* The word is explained at length in Vol. I. Chap. 10.

† *Traité Complet*, etc., p. 218.

‡ In full Sr. Herculano Carlos de Magal-

haens Castro, a delegate of police. Breakfast at 9:30 A.M., a table d'hôte (mesa redonda), at 4 P.M., and 0\$800 per meal.

lattice-work of dingy, chocolate-coloured wood. It will soon be removed: these antiquities are very properly despised in the Brazil: here Temple Bar would be photographed, and no longer allowed to cumber the ground. The sooner the old Pillory is demolished, the better for progressive Diamantina—let me suggest.

In the Largo da Rua Direita or de Santo Antonio is the Town-hall (Casa da Camara), a humble building, displaying the Imperial Arms.* It has latterly been used as a Masonic Lodge. This was forbidden, justly enough, because a Portuguese priest, Padre Luis, became a brother. Opposite the Camara, and facing with the Course of Empire, is the Matriz, whose "Orago" is Santo Antonio. It is an "insula," with a raised platform towards the northern slope of the hill. A stone wall shows the cemetery, to be banished *quam primum*. The two-windowed front, with two rose-lights pierced in the rude Taipa-conglomerate, is bound in neutral-tinted sky-blue french-grey, whilst the doors and shutters are daubed chocolate. All above the cornice is of board work, even to the belfry, the first instance of the kind which I have seen in the Brazil. The single window of the steeple shows a gilt bell. There is a clock which, wondrous to relate, goes, but goes wrong, and the finial is the usual armillary sphere with the normal extensive weather-cock, more often a dragon than a cock. There is nothing to be described in the interior of this or of any other Diamantine Church, and the "lumber" work gives them generally a look of instability.

We are in the heart of the city, the centre of business-circulation. On the left of the Square is the Intendencia de Sousa Reis.† "Intendency" here means a substantial market shed, the embryo of the Pisan Sotto borgo. Sousa Reis is private property, and under the deep dark verandah are shops which sell everything, from flour to snuff, required by the wild country. Below and to the east is a large open square, the "Cavallhada Nova," as distinguished from the "Velha," further down and almost outside the city. These clear spaces were so called from the Portuguese carousels, which, like bull-fights, once accompanied every festivity. They are obsolete in the Brazil, though they preserve vitality in

* The lower story is not the normal prison, which has been removed to a building near the theatre.

† There are two other Intendencias, de Sebastião Picada, and the Lages; the latter has five stores.

Italy, in Portugal, and even in Anglicized Madeira. The last "tournament" I saw was at the Island of Fogo, in the Cape Verde group.

Crossing and leaving on the right the Rua da Quitanda, I found the house of my host, Sr. João Ribeiro (de Carvalho Amarante), on the northern side of the Praça do Bomfim. The ground floor is laid out in a dry-goods store and an inner writing apartment, where the diamonds are kept. The dining room and kitchen affect the back part of the tenement, and above are the apartments of the family. The hospitable Lisbonese freely confesses that he began life with driving a few mules; he is now the wealthiest merchant where all are merchants, and he supplies goods even to Guaicuhy and Januaria.* At the Pé de Morro, near the Curumatahy influent of the Jequitinhonha, he owns a large fazenda, where he breeds cattle, grows provisions, and manufactures sugar and rum. He is in trouble about his 50 slaves, and nowhere, as far as I know the Brazil, are negroes so troublesome as those in and around Diamantina. Many of them take to the bush and become "Quilombeiros," black banditti, ready for any atrocity which their cowardice judges safe. Here no one travels even by day without having his weapons handy and without looking round the corners. They are skilful as Canidia or Locusta, and much addicted to the use of Stramonium.† A common symptom is an intense pain in the legs, a medical man assured me, causing a drawn and anxious countenance. Many a slave-owner has suspected malingering, till undeceived by the sufferer's speedy death. A case has lately occurred at Pé de Morro; the owner will presently visit it and make a terrible example of the poisoner. Thus a threatened servile mutiny was summarily crushed in 1865 by flogging and the galleys;‡ nor did anybody meet with the fate of Governor Eyre.

Sr. João Ribeiro consigned me to his bachelor guest-house in the Rua do Bomfim, so called from a Church dedicated to Our Lady of Good End. The street is a kind of ragged irregular

* See Chapters 13 and 17.

† The System says that its alkaloid principle is well known to the negroes, who prepare from the plant their "philters," that is to say, charms and poisons, love-draughts and other devilries. May not the seeds of the Stramonium have been brought from India viâ Africa? St. Hil. (I. ii. 97) determines

that the plant has here followed the footsteps of man from N. America.

‡ The "Quilombeiros" of Medanha had a Maroon settlement within a league of the village, and threatened the suburbs of Diamantina. When their stronghold was attacked and taken, whites as well as blacks were found in it.

square ; it boasts of a good barber, a watchmaker, and an apothecary. Of course all imported articles are sold at an extravagant price, and considering the transport, this is not astonishing.* From the Bomfim the Rua do Amparo, tolerably paved, runs to the east, and strikes the Valley of the Rio de São Francisco. It passes by the Church of N^a S^a do Amparo—Our Lady of the Refuge. The front was adorned with coloured glass lamps, and the Sunday morning squibs told us that a Novena was in progress there. The best drinking water is brought from the bottom of the ravine, where a few houses and huts, plantations and fields, are scattered about, leaving abundant building room. If not afraid of snakes, ticks, and thorns, you may fight your way far down the Rivulet banks.

My three days spent at Diamantina left upon me the most agreeable impressions of its society. The men are the “ frankest,” the women are the prettiest and the most amiable that it has yet been my fortune to meet in the Brazil. Strangers everywhere in these regions receive cordial hospitality, but here the welcome is peculiarly warm. Perhaps the wealth of the place has something to do with it. Where lodged I was at once called upon by some young men from Rio de Janeiro, here popularly called Cometas. Sensible, obliging, and well-informed, they had none of that offensiveness of the European Commis-voyageur, or travelling bagman. The calling is honourable as any other. It may be said with truth, and greatly to the credit of the Brazil, that no man feels degraded by honest industry, however humble. Consequently society ignores the *mauvaise honte* about professions which distinguishes the old world, where I have seen a man blush to own that his father was a “ doctor,” and where Faraday was lauded because he dared to confess in public that his brother was a gas-fitter.

My first evening was spent at the house of John Rose, a Cornishman, originally a miner at Morro Velho, afterwards a diamond-digger, carpenter, mason, architect ; his last job was at the Bishop’s

* My test bottles having been broken, I bought--

3 oz. muriatic acid	. . . . .	1\$ 040
3 oz. nitric acid	. . . . .	1\$ 040
2 oz. tannin, in alcohol	. . . . .	6\$ 500
		<hr/>
Total	. . . . .	10\$ 580

At that time about one guinea.

Palace. By sobriety and good conduct he has cleared some 5000*l.*, and now he can amply enjoy his propensity for independence in word and deed. Not so pleasant was another stranger, who at once showed the cloven foot by loudly abusing the Brazilians, and by declaring that they allowed none but themselves to thrive. I will not mention his name, for, although he must have turned the half-century, he may still find out that it is never too late to mend. He is a well-educated man, knowing German and English perfectly, Portuguese well, French tolerably; he can teach languages; he can keep books; of course he has a gold mine; he has been a doctor—still a popular character;* and he still practises homœopathy. But he prefers to “loaf about,” borrowing 100\$000 from this and 160\$000 from that acquaintance, whose charity he expends, not on raiment but upon drink. When in liquor he is addicted to the free use of knife and pistol. He attributes his habits of sleeping in the streets to the infidelity of his spouse. He had left her at Rio totally unprovided for, and she was persuaded to accept the protection of a Portuguese, who offered to, and who did, maintain, educate, and settle her children. The latest little game of my unpleasant acquaintance has been Freemasonry, to which he has, for a consideration, admitted the least worthy aspirants. He proposed, moyennant the payment of 5*l.*, to make me a P.M., and he had the impudence to deliver a message from me to a certain ecclesiastic, begging that Freemasonry might not be preached against; it was necessary to call, and to explain the affair.

This man was a Hanoverian, consequently a Prussian, but he called himself an Englishman. Britons in the Brazil are wont to complain that they and the Portuguese are exceedingly unpopular. The fact is that we frequently suffer not only for our own sins, which are manifold, but for those of our European neighbours, which are not few. Foreigners also exaggerate our unpopularity. “*Les Anglais sont détestés au Brésil; on regarde comme appartenans à cette nation tous les étrangers chez lesquels des cheveux blonds et une peau blanche indiquent qu'ils sont origines du*

* The Diamantists did not seem to me satisfied with the gifts of their Esculapiuses, as everywhere in the outer Brazil a stranger is expected to be a medicine-man. I was at once consulted for a simple hepatitis, which the leech, after the normal treatment of cupping and blistering, was attack-

ing with anti-spasmodics. In vain I assured the patient that my favourite profession was rather to kill than to cure; he seemed satisfied that he had already run the very greatest risk of killing without murder.

Nord," says, in 1815—1817, Prince Max. (i. 119). M. Dulot (p. 62) speaks of "la brutalité traditionnelle envers les faibles qui fait détester partout l'Angleterre;" and here he would be justified if he alluded to the "Aberdeen Bill." St. Hilaire (III. i. 219) remarks that "grace à leurs compatriotes, Mawe, Luccock et Walsh," the English became unpopular in the land. And it is almost a truism to say that if perhaps we hear too little good of ourselves from others, we, like other nations, hear far too much good of ourselves from ourselves. This puffery and clap-trap about our own perfections is still held to be patriotism, and at last the "genial, broad-shouldered Englishman" has learned to bear without a murmur gigantic weights of "Buncombe."*

The Brazil, also, like other people, has met with a small amount of merited praise, and a large amount of unmerited abuse. But the travellers of one nation have hardly been more polite to her than those of the others.† The result of my experience at present is that, despite the Aberdeen Bill and the silly Abrantes-Christie affair, the Empire respects us, and even likes us as much as, if not more than, her other visitors. It is not pretended that strangers are favourites anywhere in the Brazil; the country expected from them far too much, and they justified considerably less than the most moderate expectations. In our case they complain of the "insular manner," now happily waxing obsolete, as the Frenchman of Goldsmith and Sterne, the coarse roughness of the uneducated, ‡ and the shy pride and haughty reticence of their "betters," are ever gall and wormwood to the Brazilian spirit. And we have lost esteem by the

* It has lately been judged advisable in British India to consult high officials concerning the appreciation of our rule by the natives, not by ourselves. Many men, myself included, have since 1850, written and repeated in the plainest English, what now comes before the public in a decorous foolscap form. The only result was that we were pronounced by the few who took the trouble of reading us, to be either ignorant or impertinent, and ignorance and impertinence in such matters can expect very little mercy.

† Nor have the French tended to improve the entente cordiale. The Comte de Suzannet (Souvenirs, 1842), M. de Chauvaignes (Souvenirs, p. 160), the unjustly treated M. Jacquemont, and MM. Biard,

Expilly, and D'Abbadie, may be quoted versus MM. Reybaud, Ferdinand Denis, and Liais. I cannot explain, except by the influence of an outrageous nationality, how St. Hilaire (III. i. 263), defends and applies the terms "homme de beaucoup d'esprit," to M. Jacques Arago, author of the "Voyage autour du Monde," and one of the most disgraceful charlatans that ever appeared in the Brazil.

‡ "This is a free country, and any man therefore may take any freedom he likes with any other man, and protest is simply Quixotic. But we are a coarse people." Thus writes a popular author, who has never yet been called a "degenerate Englishman."

great country's little wars, which began the dotage of a liberal policy, and which led it to shirk the duties of its position, and to retire from the business of the world. An Abyssinian Expedition benefits England as much in the Brazil as in Hindostan, and may be pronounced to be worth the two-pence.

I paid a visit to the Rev. Michel Sipolis, at the Episcopal Seminary, the staring white building with unfinished outhouses, before mentioned. The Government assists the establishment by paying salaries for the several chairs, and the three French priests receive, per annum, only 400\$000 for clothing and all wants; this salary of £40 must raise them above all suspicion of interestedness. At 1 P.M. the bell rang and we went to the Refectory; there were twelve pupils, a considerable number during "long vacation," and these young men spoke French during the meal, and ended it with a long prayer. M. Sipolis then led me to the Episcopal Palace, which is opposite the Carmo Church, a white building picked out with blue, plastered concrete below and boarding above. The diocese of Marianna formerly extended here: Pius IX. created the bishopric by the Bull "Gravissimum Sollicitudinis," June 6, 1864. The Ex^{mo} and Rev^{mo} D. João Antonio dos Santos,* of the Council of H. I. M., is an old elève of the Caráça Seminary; he naturally patronises, in preference to the Propaganda of Lyons and the Capuchins of Rome,† St. Vincent of Paul, who must find it hard work to answer all the calls upon him. The Bishop was a man about forty, with a gentle, feminine voice and manners: I found him diligently engaged with M. Mirville on Magnetism (not Faraday's), and he did not take part with M. Sipolis when the latter proved to me that table-turning and "rapping" are the works of evil spirits.‡

From the Palace we passed over to the house of a fazendeiro, at whose door an Agent de Police sat comfortably in the shade. He had had with a neighbour some trifling dispute about a water-

* In the Brazil it is often impossible to tell the family names of ecclesiastics, who mostly adopt some technical or theological cognomen, somewhat after the fashion, though not quite in the style, of "Praise-God-Barebones."

† Here the Capuchins have assumed as instructors the place held by the Jesuits. I need hardly say that they have never done so in Europe.

‡ Nec deus intersit, etc. We may add nec diabolus. As regards the spirit theory I may again remark that, if after this life my psyche or pneuma, or whatever it may be, is to find itself at the mercy of every booby who pays half-a-crown to his or her medium, evidently the future state of this person will be much worse than the present.

course, which ended in a "shyuting," and he was expected to purge himself before a jury. The antagonist having fired into his side and mangled his thumb, which required amputation, the wounded man cried out to his son, who discharged a barrel or two into the hostile face, and then sensibly took to the bush. Of course there was another and a contradictory account, which declared that the fazendeiro had snatched the gun from his antagonist, and that it had exploded, hurting his hand. I could not but think of the true or apocryphal story touching Sir Walter Raleigh and the "History of the World:" he would have found it impossible to settle the rights of this little affair at Diamantina.

Meanwhile the hurt man was in great pain, restless, and fearing tetanus. Yet the room was darkened, the windows were shut, the air was oppressive, five silent ladies sat pensively looking on, and just outside the doors were half a dozen muttering male friends. When a patient is held to be sick unto death, the popular Brazilian idea—of course the rare sensible scout it—is to visit and console and condole with him. Such an apparatus would injure the most robust; surely it would be humane to publish a Portuguese version of "Notes on Nursing." The vile Caldo de Gallinha, or hen-broth, which it is indispensable to swallow every two hours, is an infliction to be compared only with the "beef-tea" of the old-fashioned priestess of Libitina in Great Britain.

My last appearance in "Society" was at a ball given by a wealthy widow, the Sra. D^a Maria de Nazareth Netto Leme, in honour of the baptism of a grandson, the second child of a very charming young person, wife of Sr. Joaquim Manoel de Vasconcellos Lessa. When this pretty lady was married, she was attended by twenty-four bridesmaids in dresses from Paris; the merry-making was kept up for a fortnight, and it is said that 750 bottles of Bass disappeared every night. This rain of meat and drink at the City of Diamonds is a great contrast to the ascetic "tea and turn out" of Southern Europe.

The whole of the City of Diamonds was in accurate black raiment before 3 P.M., the hour for the religious ceremony. As evening approached, I accompanied Sr. João Ribeiro with the most amiable D^a Maria and his daughter up the Rua das Mercês,

so called from its church, to the Alto da Gupiara.* The rooms were crowded, and many had sat down to a preliminary supper. The toilettes were remarkably good, a contrast to the times described by Gardner, when ladies went abroad in men's hats, and "black seemed the most fashionable." Every neck sparkled with diamonds: the other ornaments were the solid and honest, if not tasteful, jewellery of Diamantina. The ball seemed to be a family party, infinite in merriment: here, as amongst the Catholics of England, all are related or connected, more or less, and those who are not, intend to be, or are "gossips." The dancing was chiefly quadrilles. I excused myself on the plea that my last performance had been with Gelele, King of Dahome: thus the proprietress of No. 14, St. James's Square wore for life a glove upon the hand saluted by a former Prince of Wales.

Supper seemed never to end, and a stiff shower of rain only added to the mirth within. The life of the party was "O Diamantino," curtly for Sr. José Diamantino de Menezes, son of the late Barão de Arassuahy.† I stole away at 2 P.M., leaving all "merry and wise." This is specified, because the country mice around give the city mice a bad character, and declare that every morning the ladies and their slaves sally forth to pick up their husbands from the pavé, where "tangle-leg" had put them to bed. Of this I saw nothing.

Of course in a place where money is abundantly ‡ spent, and where visitors flock in for pleasure, after the toils and the dulness of the out-station, there must be some debauchery. The many smiling faces, protruding from small casements, cheeks blooming with the juice of a certain Hibiscus and a squeeze of lime, tell their own tale. But such things have nothing to do with society. The "hell," moreover, that usually accompanies the modern growth of mining cities, does not exist in these

* I have already explained Gupiara (corrupted Grupiara), to mean the slope of a tilted shed; hence in gold and diamond diggings it is applied to a ledge projecting caves-like over a stream. The Alto, seen from the entrance of the city, is a conspicuous hill, crowned by a building that resembles a fortress or redoubt. This property originally belonged to Sr. Luis Antonio, and then passed to Sr. José Joaquim Netto Leme, whilome husband of the present proprietrix. It is still rich in gold,

which no one takes the trouble to disturb.

† The river rising about twelve leagues east from Diamantina, passing by Minas Novas (do Arassuahy), and forming the eastern gate of the Jequitinhonha. The word is Araçu, a kind of bird, and -hy, water. There was also a Baron of Diamantina, of the Lessa family.

‡ Here, as in Australia and California, the miner is mostly poor, whilst the merchant or storekeeper is rich.

regions, except when a stray Frenchman starts a roulette table, and makes his fortune after a few months.

An Englishman, who had spent thirty years in and about Diamantina, told me that of late years its prosperity had diminished.* Formerly diamonds were easily washed from the surface diggings : now the works are confined to capitalists. In early days the stones were sold in the city, at present they are sent to Rio de Janeiro,† and to Europe. The slaves have been traded off to the coffee-growing Provinces, and the free man, white or black, will not, or cannot work. Hence fortunes now average 4000*l.*, whilst the highest may amount to 10,000*l.*; these figures, however, represent very different values in Minas Geraes and in England.

But so far from the diamonds being exhausted, I believe that the true exploitation of precious lithology has still to begin, and that it will extend 800 miles along the Serra do Espinhaço.‡ There are also rich gold-diggings, which men hardly take the trouble to work; with gold they justly say you may be poor, with diamonds never.§ When the rail shall have reached Sabará, and the paddle-wheel shall connect the Rio das Velhas with the great São Francisco, the immigrant may be expected, and the Diamantine country will attain its full development. “The Lord bring them!” say the mine-proprietors, alluding to the Southerners of the Union, “and they will soon use up our useless slaves!”|| And whilst Golconda and Visapur have failed, and the Cape of Good Hope, Australia, and California are but beginning, and whilst men sink capital in the trash manufactured in

* The population in 1800 was about 5000; in 1840, it was 6000; and now it is not increased.

† Diamond cutting was attempted without success by a Sr. Carvalho, at Bahia. There are three or four lapidaries at Rio de Janeiro; the best is, I believe, Sr. Domingos Moitinho (at the corner of the Rua d’Ovidor and the Rua dos Ourives). Some of his workmen are descendants of the artists brought from Portugal by D. João VI. The machinery is driven by an engine of five-horse power. The diamond is here cut exactly as in Europe, and the Brazilians ignore the flat slab-like shapes of Hindostan. Of late years Boston has attempted the industry, but it cannot, I am told, compete with Amsterdam.

‡ The portion which has been explored

begins at the Rio do Peixe, nine leagues south of Diamantina, and extends to the celebrated Serra de Santo Antonio, forty to fifty leagues to the north, or between N. lat. 16° to 19°. All was found to be diamantine, but not continuously so, as in the Demarcation Proper.

§ According to Dr. Couto (p. 112), who settled and died at “Tejuco,” the city is built upon slabs of red copper, and the metal is found in the pavement and the garden walls.

|| “The pride of man makes him love to domineer. Wherever the law allows it, therefore, he will generally prefer the service of slaves to that of freemen.” (Wealth of Nations, iii. 2.) My experience is diametrically opposed to this dogma of Adam Smith.

Paris and Birmingham, the Brazil may still hope to do great things in the "diamond-line."

The sounds of every city leave upon the traveller's sensorium their own impression. At Diamantina my brain connects the church-bell and the Araponga, or blacksmith bird. The sharp, sudden cry, which to the stranger seems artificial, charms in the dead silence of the forest alcove, tempered by the distance of the tallest tree-top, and when the little white form is not visible in the verdant gloom. Caged, and in a street, the thing is quite out of place. The situation of Diamantina, as has been seen, renders the rumbling of the cart and the rolling of the carriage impossible: here, as at São João d'El-Rei, the hammock is the only conveyance, and it is seen in the hall of every rich house. As usual in the Brazilian interior, the city is guiltless of club, café, Mechanics' Institutes, Christian Young Men's Association and Mutual Improvement Societies, except for musical purposes; the bands, however, are, all things considered, good. There is neither library, literary cabinet, nor bookseller, but of course there is a photographer. About three years ago, the only newspaper "O Jequitinhonha," which was devoted solely to politics, expired, and now the city does not contain a printer. Yet the citizens—the Brazilian is a citizen, not a subject—are wild for education, even for church education. The "Sisters" have already had offers of 100, and have accepted 30 pupils.

The site of the city is one of the highest in the Empire,* and to reach it we have ascended seven distinct gradients. The coldest months are June, July, and August, when frosts are common in the lower levels; they do not, however, prevent the maturing of the Pitanga berry.† The wet season opens in October or November, with thunder storms from the north; the heaviest downfalls came from the west, but sometimes the warm south-west winds bring rain and hail. The fertilizing showers of the dries, which abound in other parts of the Brazil, are here

* The altitude ranges, according to travellers, between 4000 feet and 1730 metres (5702 feet) above sea level. The steps of ascent from the Rio das Velhas are seven, viz., first, to the Paraúna stream; second, to the Riacho do Vento; third, to the Chapada; fourth, to the Contagem summit; fifth, to Gouvêa; sixth, to Bandeirinha; and seventh, to Diamantina.

† The well-known *Eugenia pedunculata* (E. Michellii, Linn.), whose quadrangular red fruit ripens well at Madeira, and makes good jellies. When raw it has a drug-like flavour, which is disliked by strangers. In this part of Minas Geraes it is rare, but it flourishes at S. Paulo, 2200 feet above sea level, though not so kindly as on the coast.

rare. The east wind is the mildest and the most agreeable ; the north is cold and raw, causing sickness like our east. From November to February is the hot season, and the annual range of the thermometer is from 64° to 88° . Water of the best quality is supplied by almost every hollow. In the clear, bracing air European fruits and vegetables thrive ; the soil is sometimes rich and deep, and the abnormal expense of provisions would make the neighbourhood an excellent market for an agricultural colony.

“Tejuco,” the village in the Comarca do Cerro, became a Freguezia September 6, 1819, a Villa Oct. 13, 1831, and the Cidade Diamantina by the Provincial Law, No. 93 of 1838. It owes its prosperity solely to the diamond. This valuable stone was used, it is said, by the Indians as playthings for their children.* The first man who sent it to Portugal was one Sebastião Leme do Prado, in 1725 ; he had washed certain brilliant octahedrons in the Rio Manso, an affluent of the Jequitinhonha. They found no sale, and the same happened to Bernardo (or Bernardino) da Fonseca Lobo, who hit upon a large specimen amongst others in the Cerro do Frio. There is a local tradition that the latter was a friar who had been in India, and that about 1727, seeing the curious, brilliant little stones used as counters at backgammon by the gold miners of the Jequitinhonha, he made a collection of them and went to Portugal. Others attribute the discovery to an Ouvidor or Auditor Judge, fresh from service at Goa ; the specimens were sent to the Netherlands, then the great jewel-market of Europe.

The official account of the exploitation is that D. Lourenço de Almeida, the first Governor of Minas Geraes (August 18, 1721—Sept. 1, 1732), reported the new source of wealth to the Home Government. Portugal at once declared the diamond to be Crown property (Carta Regia, Feb. 18, 1730), and established the celebrated Diamantine Demarcation, forty-two leagues in circumference, with a diameter of fourteen to fifteen leagues.† Gold

* It is generally supposed that in Europe Louis Van Berghem, popularly written Berquen (1456—1475), invented the practice of making diamond cut diamond, and established a guild in Bruges. But the Hindus must have been long beforehand, and the working of diamonds in Europe is mentioned in 1360. It is possible that the

industry had a little before the fourteenth century drifted, like the cholera of modern days, westward.

† John Mawe's Map gives a sketch of the “Diamantine Demarcation.” It is an oval of eight by sixteen leagues, and “Tejuco” was nearly in the centre.

digging was forbidden within the limits, and a tax of 20\$000—subsequently raised to 40\$000 and 50\$000—was placed upon every head of negro. To arrest the many and repeated disorders, an Order, dated Sept. 30, 1733, created the “Intendencia Diamantina;” the washing-grounds were marked out, and no one might enter without a licence. In 1740 (Henderson says 1741), the lands were farmed out, with great restrictions, for 138:000\$000, but this first contract was much abused. In 1771 (1772, John Mawe), the great Pombal reformed, with characteristic thoroughness, the diamond mines, by taking the management into his own hands. He abolished ruinous leases, and governed by an Intendant-General, under whom worked a board of three Directors in Lisbon, and three Governors in the Brazil. The scheme failed, and so energetic was action against the “extrariadores,” that the place became almost a desert. In 1800 to 1801 the gold supply began to fail, and the lands about the Villa do Principe, where diamantine was mixed with auriferous matter, yielded only 2½ instead of 25 arrobas. Thus the Government lost by reducing all industry to the diamond, and the people fled because they could not afford to buy iron, steel and gunpowder.

I have not been able to find out exactly at what period of Tejuacan history occurred the event alluded to by Sr. Joaquim Norberto de Souza Silva : *

E o filho de Erin, que em duros ferros
Pagou seu pasmo por um novo imperio.

The name given in the foot note is “Nicolas George.” He was, we are told, of Irish extraction, and employed in the Junta of the Arraial do Tejuco. Admiring the fertility, the wealth and the vastness of the Brazil, he declared that her shores contained everything necessary for a mighty Empire, and that she might become free and independent as the United States. The sentiment made him share the pains and penalties of the “Conspirators of Minas.”

According to John Mawe, from 1801 to 1806, both years included, the expenses incurred by the Government in exploiting

* In the Cantos Epicos—a Cabeça do Martyr—

“And Erin’s son who in the eating irons,
Atoned the purpose of a free-born realm.”

the district were 204,000*l.*, and the diamonds sent to the Treasury amounted to 115,675 carats. During the same period gold was washed and valued at 17,300*l.* Thus, he says, the carat cost 23*s.* 9*d.* At length the Decree of Oct. 25 (1832) abolished the monopoly with its Junta Administrativa dos Diamantes, and the industry assumed its present form.

If the Portuguese doubted the existence of the diamond in the Brazil, the English did the same. There is a difference in specific gravity between the noble *Vieille Roche* of India and the produce of the New World.* In the last century, Jeffries and other lapidaries contended that the Brazilian were unformed gems exported from Hindostan. The miners cleverly turned the tables upon their scientific antagonists by sending their stones to Goa, whence they were forwarded as true East Indian to Europe.

According to John Mawe, during the first twenty years some 1000 oz. of diamonds were annually extracted from these diggings. Castelnau (ii. 338), in 1849, estimates the total value of the Minas Geraes exportation at 300,000,000 francs. The subject is also treated by José de Rezende Costa, in the *Memoria Historica sobre os Diamantes* (Rio, 1836). I will not trouble the reader with details, as all such estimates are the merest guess-work, and even the modern appliances of Custom-house collection and statistics are powerless against the general rule of contrabandism. The following table, however, taken from Mr. Nathan's annual report (Rio de Janeiro), will show the

EXPORTS OF DIAMONDS AND ESTIMATED VALUE IN YEARS 1861 TO 1867.

Years.	Oitavas.	Price.	Total Value.
1861 . . .	4,696 . . .	500\$ 000† . . .	2,348,000\$
1862 . . .	5,019 . . .	” . . .	2,509,500
1863 . . .	5,824 . . .	” . . .	2,912,000
1864 . . .	4,861 . . .	” . . .	2,430,500
1865 . . .	4,962 . . .	” . . .	2,481,000
1866 . . .	5,695 . . .	” . . .	2,847,500
1867 . . .	5,704 . . .	” . . .	2,852,000
Total . . .	36,761		18,880,500\$‡

* The difference of weight is attributed to the mineral oxides that colour the stone. The following are the popular figures :

Golconda (Indian).	Brazilian.
White, spec. grav. 3·524	3·442 (M. Barbot, 3·444).
Yellow, ,, 3·556	3·520 (,, 3·519).

Lapidaries generally agree that the old or E. Indian diamond has more lustre and brilliancy than the new or Brazilian.

† This is too low.

‡ £1,888,000.

CHAPTER VIII.

TO THE DIAMOND DIGGINGS OF THE SOUTHERN RIO DAS PEDRAS, ALIAS THE JEQUITINHONHA.

THE RIDE.—QUAINT STONES.—SÃO GONÇALO OF THE GOOD GIRLS.—THE SERVIÇO MINE DESCRIBED.—EXPENSES.—WANT OF MACHINERY.—PLUNDER.—DR. DAYRELL.—THE “LONBA” MINE.—THE MARAVILHA MOUNTAIN.—RETURN TO DIAMANTINA.

Ὅ χερσῶν λυπεῖ σ' οὐ καὶ μ' οὐ νοῦσος ἐνοχλεῖ,
Ὅ πείνη σ' οὐ δίψος ἔχει σ'.

SHORTLY after my arrival I was introduced to a Brazilian gentleman, Sr. Francisco Leite Vidigal, who lost no time in inviting me to visit his “Serviço,” known as the Canteiro or “pot-stand.” This season, the height of the dries, is the best for exploring the diggings, which are now all activity.

We breakfasted perforce and set out late, although the sun is hot, and we had four to five leagues of total work before us. We rode down the Rua do Bomfim to the southern suburb, past a very small post-office in the Largo do Rosario, and a fountain with cocks sticking out of steatite faces. Here is a negro church, as usual mean and gaudy, and a large unfinished theatre, a carcass of timber and brown clay. A splendid Gamelleira fig, whose natural grandeur did not set off the dwarfishness of the Art around it, led us to a Calçada winding down a stiff descent. Here the site of the city falls into the riverine valley, and the slope of fine soil is rich in oranges, plantains, myrtles, and trees that give more shade than fruit.

Beyond the bank the place is called La Palha; here are the large ranch, the venda, and the camping ground belonging to a Frenchman, M. Antoine Richier. I failed to find him at home, but the thumbing of his photographic manuals showed an interest in something civilised. We then crossed a confluence where the

Poruruca or Pururuca,* translated "Stream of the sand and gravel," flows from the west into the little Rio de São Francisco. The banks were a mass of loose amygdaloid, pebbles of water-rolled quartz; and they "paint gold," which no one cares to work. In the evening my host showed me many oitavas lying in the corner of his hut; they had not even been washed for market.

We then ascended to Campo ground, and struck the highway which leads to the Provincial Capital, viâ the city of Cerro, now Cidade do Principe, distant ten leagues.† Before us rose the grand Peak Itambé, said to be 6000 feet above sea level. Its head was in a cap of clouds, ever similar, never the same, and the shoulders were clad in ruddy grass and gloomy forest. On the eastern horizon rose the hilly mass called the Curralinho, and held to be very rich in diamonds. Around us were outcrops of the usual granular quartzose Itacolumite, hard and soft, finely laminated or coarsely agglutinated, greyish outside, and overgrown with lichens; the inside is snow-coloured or slightly yellow. In places the masses are horizontal, forming regular walls; in others they become ridges of slabs disposed at every possible angle. During the day we saw a man in a liberty cap, a sphinx, a frog-like labyrinthodon, an old mutilated lion, gravestones with inscriptions, stones with hands, gaps, arches, circular holes, and every variety of outlandish shape. The degradation of this grit forms the frequent patches of snowy sand, which are of course sterile, whilst here again the red-brown soils which separate them are often exceptionally fertile.

The road proved to be especially vile, and at the most precipitous narrows we were certain to meet strings of horses or unruly mules laden with large square boxes, generally labelled "Louça," equivalent to "Glass, with care." How anything ever reaches Diamantina unbroken is beyond my comprehension.

* The word is here applied to a large sand and pebbles, either water-rolled or not; the formation is not agglutinated by paste or cement (gomma), and has no body (corpo). In the diamond mine it is more watery than the "desmonte," which will presently be explained.

† St. Hil. (I. i. 330) says that Cerro is more than ten leagues from Diamantina. Dr. Couto (p. 1) makes it ten leagues to the south-south-west. The people say it is less, but their leagues are of the longest.

Cerro (or Serro, perhaps a more modern form) is a rare word applied to particular places where there are lines of hills or mountains. Originally it signifies a hillock or rising ground; Constancio explains it "Monte Alto;" and Moraes "Outeiro," as well as "Monte Alto." The Cerro do Frio, which is more usual than Cerro Frio, is supposed to be a translation of the Tupy "Yviturui," from "Yvitu," wind, and "tuy" cold.

After fording sundry streams, we crossed by a neat bridge the Ribeirão, called by the early travellers do Inferno on account of the difficulties which it offered. Its source to the west is known as "As Porteiras," and the yellow rocks and blue skies make it a "Rio Verde." Above the bridge were the "casas palhoças," the poor thatches of sapé and walls of stick and clay that tell the presence of miners.

Beyond the stream we found a few men tinkering up a very bad ascent, and we remarked with indignation a mile-post which told us that we had finished one league—such here are leagues—after two hours of sharp riding. We then pricked across a *taboleiro coberto*,* or wave of ground, beautified only by the view. In addition to the fronting Itambé, we had now to the left or west the Maravilha, or Marvel, a local Sugarloaf, just the place where a Maharatha Rajah or an Abyssinian Dejjaj would build his Durg or Amba. The Ribeirão do Palmital, bridgeless, and rolling its pellucid waters over a dwarf cliff of sandstone, veined, dyked, and ribboned with lustrous-white quartz, dashed to meet the "Rivulet of Hell." Of course a house was near the ford; linen hung in the yard to dry, but no amount of shouting would open the door. It was the same at the next bridge, although near it was a large ranch and a staked camping ground.

The hills resembled those about the Paraúna River, rough above, whilst the lower folds were of earth, here light, there stiff. On the flanks about half-way up were zones of stone piercing the soil, weathered and trodden into ledges, gutters, and deep hollows, whilst here and there lay loose rounded boulders. The head was generally spread into a dwarf plateau of thin soil, with more or less of vegetation. On cresting a summit we suddenly saw across a long green valley traversed by the long red line of highway, the church and village of the "Marriage-maker of Old Women."† The place is remarkable for its order and industry; not a "lost girl," I was told, can be found in it, and the inhabitants have many small industries. They do not care to work, where diamonds are, a hill of rock crystals which lies near their doors. When these six-sided prisms of pure silicic acid,

* Not *Taboleira coberta* as Gardner wrote. This "covered plateau," a modification of the *Campo*, is thinly clad with gnarled trees; the term is opposed to the *Taboleiro descoberto*, a formation of greater altitude, growing only the hardier shrubs and

grasses.

† *Casamenteiro das Velhas*, the title which S. Gonçalo bears in the Brazil. John Mawe, with his usual inaccuracy about names, calls the village "San Gonzales."

terminating in hexagonal points, have unbroken pyramids, which is rare after travelling, and when the interior contains the water of crystallisation or heterogeneous bodies, the larger blocks are valuable as museum specimens.

This wave of ground ended at the *Córrego do Jacá* (of the Pannier),* which boasts a small bridge. Another ridge brought us to the *Descida do Córrego do Mel* (the Descent of the Rivulet of Honey). On the further slope the sandstone slabs were so steep and slippery that my companion, a very light man, dismounted from his good new mule. When a Brazilian does this it is generally wise to follow his example. All the ground which we have traversed is rich in diamonds, but it cannot be worked for want of water; near the *Córrego* which feeds the *Rio das Pedras* many white heaps were waiting to be washed during the rains. The *Gurgulho*† or breccia, here sometimes so sharp (*gurgulho bravo*) that it cuts the hands, is peculiarly rich in stones, and about the bridge the torrent banks produce gold.

We then turned to the left, and made two miles of "picada" or bridle-path. The country was as before rocky on both sides, and poorly clad. The greenest and shadiest tree was the *Canella* (*Laurinea*). I remarked also an abundance of the large-leaved *Congonha do Campo* (*Ilicinea*), and a tree with green berries, called by my friend "*Mata Cavallo*," a general term for all things that bear "wild," that is to say poisonous, fruit. The herb called *Arruda do Campo*, because supposed to resemble the European rue, scented or tainted the air.

The last descent led us to the Southern *Rio das Pedras*, here running from the south. It is one of the head waters of the great *Jequitinhonha* ‡ River, a lesser rival of the *Rio de São Francisco*

* The Tupy Dict. explains *Jacá* by *Cesto* (basket) de *Cipós*. It is more usually made, I believe, of woven bamboo-bark.

† The word is pronounced like, but not written, "*Gorgulho*," which means a weevil (*Curculio*). It is described as a loose or compact pudding of angular stones mostly found in *Campo* ground, and thus distinguished from the water-rolled *Cascalho*. Some apply the term to a collection of *Cascalho*, others to a larger formation than *Cascalho*. An English writer on precious lithology has followed John Mawe's misprint, which corrupted *gurgulho* to "*burgalhao*."

‡ The name is written in many ways;

the old style is *Gectinhonha*. Then came *Giquitignogna*, *Gigtinhonha*, *Gequitinhonha*, *Jigitinhonha*, and so forth. The trivial and popular explanation of the word is "*Jequi tem nhonha*," the fishing crate has caught a *nhonha* fish. *Jequi* is a Tupy word meaning a fish trap (*armadilha*). *Nhonha*, according to some, in the local dialect meant any fish; in the *Lingoa Geral* the word is *Pyra* or *Pira*. *St. Hil.* (I. ii. 142) says it was explained to him by *une nasse* (creel) *pleine*; "*Juquiá*" being the *nasse*. This reminds us of such derivations as *Capivarhy* from *Capivara ahi*, *Arassuahy* from *Ouro só ahi* (gold only here), and so forth.

(Maïor). It rises a mere torrent in the mountains to the north of the Cidade do Principe. It is joined by many streams, amongst which is the Lomba or Jequitinhonha do Mato ; about two leagues below the Canteiro it becomes the Jequitinhonha do Campo, and finally the true Jequitinhonha. According to others, the Southern Rio das Pedras is the Upper Jequitinhonha do Mato, which, after receiving the Ribeirão do Inferno, is *the* Jequitinhonha, and absorbs the Jequitinhonha do Campo. The course of this river, which upon maps looks so well, is said to be much obstructed by rapids. I have not visited it. At last it takes the name of Rio Grande, divides into several arms, unites with the Rio Pardo, forms a delta, and buries itself in the Atlantic about forty-five miles north of Porto Seguro in the Province of Bahia.

After six hours' work we entered the little mining station of a dozen huts, built upon a rough stubby slope that lines the left side of the Rio das Pedras. Under the circumstances, a "Roxo forte," or cup of café noir "laced" with rum, was excusable ; this taken, we went off without further delay to inspect.

We began with the beginning, a proceeding which, say the Germans, we English rarely adopt. The descent to the mine is a narrow unrailed path, winding down the precipitous left bank of the Rio das Pedras. It was crowded with double meeting lines of black and whitey-brown labourers, free as well as servile, whom the presence of the master had galvanized into a momentary "spurt." Those ascending carried on their heads Carumbés, or cedar-wood platters, about twice the size of soup-plates, containing "desmonte,"* or the useless sand and gravel which is washed down by the greater inundations of the year, and which underlies and overlies the strata of true diamantiferous Cascalho. Planks, rough ladders, and inclined planes, led to the bottom of the long pit, whose southern extremity was 80 feet deep by 19 to 20 broad. It was evidently the river bed in bygone ages before the channel was filled up to its present height. Each talhião, or rock-wall of the underground channel, was wonderfully worked into pit holes and convex curves, regular as though the latter had been used, by the grinding action of gravelly water. †

* Desmonte is sand and gravel, with more or less consistency (liga). In gold mining "desmontar"—literally to unmount—is to remove the vegetation and the humus from over the auriferous cas-

calho. In Portugal it is synonymous with "roçar" or "desmoutar," to clear the land for cultivation.

† We shall find many of these "pit-holes" in the bed of the São Francisco River.

These are the richest pockets, and each *may* yield a hundred contos of reis. The hanging wall, and the loosened blocks on the sides, were carefully timbered wherever a joint was inclined to open.

The negroes, watched by overseers stationed at every angle, were removing, with the usual merry song, the valueless stratum under which they expected to find the gem-bearing yellow Cascallo. Some bored, others broke away the interfering rock with huge pyramidal-headed crow-bars (*alavancas*). These loosened the gravel with the *almocafre*,* an oval-shaped, blunt-headed iron, whose handle was about two feet long; those scraped out of the *fendas* or fissures the likely sand, with an "almocafre de frincha," a bent blade one inch broad by four to six in length. I was shown *in situ* the curious formation called "Cánga preta," which is found in hundreds of pounds' weight, though rarely of large size. At first it was mistaken for coal, but it became red-hot in the fire without being consumed. It looks fibrous, like asbestos, and in appearance much resembles graphite. Here also are found loose fragments of polished sandstone, turned by the water into curious shapes. I saw a child's foot perfectly imitated, and many leg bones and shoulder blades were of monstrous size.

All this work is going on far below the water level. A strong dyke of ashlar and earth has been run out from the right bank to the mid-stream of the Rio das Pedras, which here runs from south-east to north-west, bending north. Above the pit the waters are all collected into solid wooden launders, some 400 feet in length. The trough bifurcates below the mine; one fork discharges its load of foaming yellow water into the lower channel; the other turns a wheel which works the syphons and drawing pump, †—a "sack" or wooden tube, with leather joints, which should be replaced by caoutchouc. ‡ The mine, though somewhat wet, is thus kept in order.

The name is "Caldeiroës," not "Caldrones," as John Mawe writes; he justly, however, describes them as "les creux, qui étaient aparavant des remous" (ii. chap. 2).

* Not Amocafra as written by Castelnau. Tavernier mentions "little iron rods bent at the end," and used to "draw diamond sand and earth from the veins."

† The usual pump is called Bomba, the one above mentioned is known as Buxa de Saco.

‡ In this part of the Brazil several trees are supposed to be capable of supplying caoutchouc. In 1785—1787 Ferreira noted the "India rubber" of the *Hancornia speciosa*. "Resina elastica e concreto succo lacteo arbor vulgo Mangabeiras—in hac observantur proprietates ususque gummi elastici." The people seem to think highly of this source of caoutchouc. I do not.

These works must be renewed every year. At the end of the dries the moveable plant is taken down for use during the next season. In November, when the rains set in, the dam is swept away; the height of the inundation here averages twenty-five to thirty feet, and has risen to forty. The uncertainty of the seasons renders diamond mining far more precarious than any other industry which depends upon the weather. Of course, the longer the dries last the better; and miners gratefully remember 1833-4, whose prolonged drought followed closely the Anno do Rato, or Rats' year, when those rodents appeared in swarms.* Usually the wet season ends in April; in 1867, however, showers fell even in July. This incertitude, combined with many other hazards, serves to explain the gambling nature of the pursuit. "If I hit upon a pocket of diamonds," said an Englishman to me, "I will go home next year." But the "if" points to a contingency far less to be expected than breaking the bank at Baden-Baden.

In former days, the diamond diggers, like the gold diggers, contented themselves with washing the rich superficial Cascalho; after which they removed to another place. It is but a short time since "deeper winnings" have been commenced, and the originators had to endure the usual amount of ridicule, in addition to the great expense. They have now silenced the laugh by winning the day: the "old school" revenges itself by predicting that the "luck" cannot last. This Canteiro mine was held to be exhausted, valueless, when Sr. Vidigal, who deserves to become a Podre de Rico,† took it in hand. A most energetic and progressive man, he ventured £6000, here a fortune, before getting the mine into proper working order. Some 6400 pounds of gunpowder are annually expended in blasting. The outlay during the last year was 25:000\$000, and the income was 80:000\$000; this year it may rise to 100:000\$000.

My host employs during the digging season 300 slaves, worth £120 to £150 per head. The hire of each hand, food included, is about 1\$200 per day, and the monthly expense is £750. As is general amongst Brazilians engaged in any pursuit that requires head-work, Sr. Vidigal complained bitterly of the servile

* In parts of the Brazil rats are supposed to swarm every seventh year, when the bamboo flowers.

† "Rotten with riches," an expressive conversationalism.

labour-market; he wishes to dig by night as well as by day, but the smallness of his gang compels him to begin at six A.M., and to end at six P.M. Another especial grievance is the prevalence of theft. Some mine owners go so far as to declare that almost all the finest stones disappear. A receiver of stolen goods settles near every new digging, as surely as a public-house follows the Hydropathic Establishment; and here, as elsewhere, the broker is generally richer than the diamond proprietor. President Jefferson, of Virginia, desired that a sea of fire might roll between Europe and the United States. Sr. Vidigal would prefer, and justly, to see a tunnel or a bridge.

The desmorte which we have just seen carried up in platters is disposed of in the readiest and most suitable way. When the rich Cascalho,* or Canga,† is struck, the labourers transport it up the left bank, and dispose it in heaps (amontoadas) near the Lavadeiro, or washing place. In this shed I at once recognised the drawing familiar to my childhood, and copied from John Mawe into every popular book of travels. I remembered the long thatched roof of the Mandanga mine, with a stream of water passing through a succession of lengthy boxes; the four inspectors in straw hats perched upon the tallest of stools, and armed with the terriblest of whips; whilst the white-kilted sable washers, in a vanishing line, bent painfully to their tasks, and one of them, in an unpleasantly light toilette, was throwing up his arms, to signify "Eureka." It was written that "when a diamond is found weighing seventeen and a half carats (my innocence did not remark that "half"), the negro is entitled to his liberty—is crowned with flowers, and is entitled through life to look for diamonds on his own account." How I used to sympathise with that happy black person, little thinking in my simplicity, as does many a philanthropist, that he was likely to die an early death from a disease which may be described as consisting mainly of want, drink, and debauchery!

* Generally called "Cascalho corrido" (water-washed), opposed to Cascalho virgem, the pudding stone. Its substance is quartz of many varieties and colours, clear as crystal, yellow-white, slightly transparent, opaque and dark.

† The Canga of Diamantina is a conglomerate of quartz, mica, and other components pasted together with red-yellow iron clay, and covered with the dark,

ferruginous, shining, metallic coat which gives to it a name. It is eminently diamantiferous as well as auriferous. M. Sipolis showed me a fine stone embedded in it, of course the result of water washing. This amygdaloid has always consistency or body (corpo). When broken up it becomes "gurgulho de Canga." For other particulars, see Vol. I. chap. 21.

"Canga," in its agglutinated form, is

The reality of the Lavadeiro is an open thatched ranch, built "convenient" for the master's eye, and one end, which is slightly depressed, is set off for the use of the panner. The total length may be 35 to 40 feet by one-third of that breadth; but the size is of course proportioned to the number of washers at the Canteiro. One of the long sides is occupied by a line of nine "bacos,"* three-sided troughs of rough wood; the poorer owners make them of flat stones, clay slates, or slabs of the granular, quartzose and laminated Itacolumite. The troughs are each four feet long, three feet broad, and one deep; they open with a little slope towards the inside of the shed, where the water is, and there is a cross piece to arrest the heavier material.

As the Brazil borrowed her gold mining through Portugal from the Romans, so she has taken her system of diamond washing from Hindostan.† There the season was in January when the rains had ceased, and the rivers ran clear. The diamantine earth was carried into an enclosure, surrounded by a wall from two spans to two feet high, with little drains at the foot; this served as a "baco" or "batedor." Water was added, and the mixture was left for a day or two till it became mud. The mass was again watered, and loaded with soil to press down the mud, after which the drains were opened, and the earthy matter flowed off. The residuum of gravel was again covered with water if not clean; when dry it was sifted in baskets like grain for the sand to drop through. It was returned to the enclosure, spread out with a rake, and beaten with long staves or wooden pestles; pebbles had been used, but they flawed the stones. After this it was resifted, spread out again, and collected in one spot, when the diamonds were picked from it.‡

The washing here begins with the rains about November. The upper parts of the troughs are charged with Cascalho, and a hand standing before the open end or at the side of each "baco" dashes water from a shovel, often a bit of wooden platter, upon the contents; he then stirs with the fingers the mass to relieve it of the worthless earth, dust and clay, till the water runs

often applied, says Dr. Couto, to ochres of copper. When Mr. Emmanuel writes "Takoa Carza," I presume that he means "Tauá," felspathic clay, and "Cánga."

* These in older books are called Cuyacas; they seem to have been then made

larger, often three yards long by two broad.

† The stone there occurred in soil, gravel, and silicious grit (Itacolumite?)

‡ Dr. John Francis Gemelli Careri's Voyage round the World. 1683.

clear, and this washing may be repeated. Thus a pocket of diamonds is sometimes, but very rarely, hit upon. The fortunate slave no longer claps his hands in the old style of signal. He may receive his freedom after finding a stone weighing more than an oitava and a half; not by law, however, but in order to encourage the other labourers.

This preliminary ended, the *Cascalho*, now technically called "arêas" or sands, is made over to the panner. His implements are two wooden basins like those used in gold-washing. The *peneira* or sieve-pan is fitted at the bottom with a bit of tin pierced with holes, averaging six to the inch, and arresting stones of one *vintem* (half a carat); the sizes, however, vary as required. The other is the common *batêa* with the central depression (*pião*) into which the diamond, like gold dust, sinks by its superior specific gravity.

The washing (*lavagem*) begins in the *batêa*. It is charged with the rich *Cascalho*, mixed with sand and water to form a paste in which the gem will sink; the usual rotatory motion is given to the pan, the surface water is poured off and the upper useless matter is removed with the hand, more water is added, and the operation continues. The next process is sifting (*peneirar*), the pierced pan being held over the other *batêa*. After this the finer sand which falls into the under pan is washed and becomes "côrte," from "côrtar," to cut or stop. When washed once more it is "recôrte." The gravel may be thus treated a dozen times or more, and precious stones, of course very diminutive, will still be found in it. A good washer takes from half to three-quarters of an hour in order to exhaust a single pan-full. After sifting the sand is called no longer *arêas*, but *canjica grossa*, and the pieces are smaller in the latter than in the former.

Magnifying glasses are not yet in use, yet they would save much trouble and prevent loss. The present rude system is very severe upon the sight, which soon fails; past twenty-five few eyes can be trusted, and children are always the best washers.* It is during this treatment that robberies are mostly effected. Few swallow the diamond, not because it is considered poisonous, as by the Hindu,† but on account of the difficulty of doing so

* Thus in Hindostan Tavernier tells us that children were the best judges of the water, weight, and clearness of the diamond; he gives a pleasant description of

the boy purchasers and their boy principal.

† The Hindus, it is well known, consider powdered diamond to be a deadly poison, and all old Indians remember the

unobserved. In India the miner jerked the stone into his mouth, or stuck it in the corner of his eye; twelve to fifteen overseers were required per gang of fifty light-fingered men. The civilized thief pretends to be short-sighted, and picks up the plunder with his tongue-tip. A favourite way is to start as if frightened by a snake, and thus to distract the attention of the superintendent, who, if "clever," is wide-awake to the trick. Most of the stones disappear by being tilted or thrown over the lip of the pan during the washing, and are picked up at leisure.* They are easily sold to the huckster, the pedlar, or the keeper of the nearest groggery. Thus may be explained the number of slaves who have purchased their liberty and taken to the bush. Even the white man has owned that his first impulse is always to secrete the diamond.

In the evening I met Mr. Thomas Piddington, a Cornishman, who, thirty-two years ago, came out as a miner, and who during upwards of a generation has not seen his wife or children. Yet, to do him justice, he always talks of returning "home," and perhaps he might do so, but for an unhappy habit of being generous to the extent of double his means. He has turned his hand to and from everything between a pump and a bridge, and he is generally consulted in their difficulties by the mine-owners of all the country side. A fine-looking man, with straight features and jovial countenance, he is still the model of a Britisher, and he would hardly be persuaded that I was not an American; in fact he probably still preserves his opinion. He urged me to visit one of his chums, a Mr. Aaron, who is diamond washing at Quebra Lenha near the Santa Cruz village, on the Jequitinhonha River, twenty-three leagues from Diamantina. Time, not inclination, was wanting to me.

The night was cold, the stream was dark and sullen, and heavy clouds gathered in the north, making my host look glum; a few showers at this season are sadly damaging to the owners of diamond mines. On the next morning we arose early, for we had hard work "cut out" for us. After coffee we rode down the very rugged and troublesome left bank of the Rio das Pedras; a shorter and better path runs along the right. Close to the Can-

case of the great Commissariat Agent who came into court with a small packet under his waist-shawl, determined to swallow it if cast in his suit. It can only act mechanically like coarse powdered glass, formerly given to dogs as an anthelmintic, by

abrading the surface which it touches. I have known cases in which the latter has been tried in the Brazil.

* Many a wager has shown that the black can rob his master under the latter's eyes.

teiro is a smaller "Service," also belonging to my friend Vidigal; at this season it employs about a score of slaves. Above it is a good site for a house, with the essentially useful capability of overlooking the work; but my host is a philosopher, satisfied with his hut as long as it brings money; he will never have a better building until it is built for him. The country here is pretty, and the contrast of blue sky, white sands, and a profusion of the purple Quaresma, which grows about in clumps, makes it a Wady in the waste. The land, where not stony, is productive, as was proved by the fields around the Fubá Mill. My guide pointed out to me certain red cuts and spoil banks at the bottom of a small Gupiára on the further side of the stream. Here, some years ago, one José Joaquim da Souza saw the true diamond formation thrown to the surface outside the nest of the large plantation ant (*Atta cephalotis*, the Taó of the Tupys and the Formiga da Roça of the Brazil). Before purchasing the ground he cleared 150 oitavas (nearly four lbs.) of diamonds, and at his death he left £6000.

After half an hour we forded the Rio das Pedras, a notoriously dangerous stream: but lately it had drowned two boys. I readily recognised from afar our destination. The house looked neat, and the orchard-garden, rich in oranges and other fruits, was prettily laid out; in fact there was some flavour of the old country, pleasurable—when not too strong—in a new land. The most curious growth is the Cipó Jiboia,* the "boa," or "snake" creeper, so called from its form; the juice they say forms excellent cement, and cracked china mended with it will, when thrown on the ground, fracture in another place. This would be a boon to many a notable house-wife.

Dr. Dayrell, my countryman, of Barbadoes family, originally from Bucks, can correct Rokeby in the matter of his ancestor "Wild Darrell" of Littlecot Hall, who burned the baby. After taking a London degree and marrying, he came out in 1830 to the Cocaes Company, and he can tell many a curious tale touching the early mines. For the last thirty years he has been settled at Diamantina, where a large family of sons and daughters has grown up around him, and where, much to the detriment of his professional prospects, everybody is now his "gossip." He has a house in

* Or Giboia, the boa constrictor, from "ji" or "gi," an axe, and "boia" or "boya," a serpent, because it is supposed to strike like a hatchet.

the city, and a fazenda of some 1200 acres; all his sons have found employment, and he looks with indifference even at the prospect of becoming lord of the old manor-house.

Dr. Dayrell kindly consented to accompany us, threw his holsters across the mule saddle, and whistled his dog, a half-bred English mastiff of the Morro Velho breed, now unfortunately becoming extinct. He had learned to be cautious, having been twice shot at in the Serra de Grão Mogor, once by mistake and once with malice prepense. We rode down the right bank of the Rio das Pedras to a little Lavra where one of the doctor's sons, Mr. Felisberto Dayrell, was working with a score of hands. The property is hired and has produced daily 2\$000 per head; with industry and economy it may turn out well. The "Corrida" is a miniature of the Canteiro mine; there is the dam, but of trifling size, and the pit is still very shallow.

Beyond this point we found the road rough, and the river valley much turned up. After about a league we reached the Ponte de Santo Antonio, named after a rich Córrego, which has caused the growth of an Arraial. The troughs worked last year by Sr. Antonio Baptista still lay on the ground. The Córrego do Mel joins the Rio das Pedras above this Devil's Bridge, and the joint channel is hideous with jagged cruel rocks extending almost across. The blocks are of the hardest crystalline Itacolumite, showing a distinct cleavage: one kind is the green (Cabo verde), whilst the other has a ruddy, purplish blush, the effect of iron. Both glitter and sparkle with mica.

Accompanied by Mr. Carlos Dayrell, another of the scions, we reached the Barra da Lomba Mine. This Serviço, worked by the concessionists, José Bento de Mello, José Julião Dias Camargos and others, deservedly enjoys a high reputation. During the last year a single share yielded forty-one oitavas, or above five ounces, worth £4000. The system was that of the Canteiro, but the works are larger, the pit is deeper, and the labour is more dangerous. The dam extended half across the Rio das Pedras, here a much more important stream, and cut off the water from the excavation on the left. I descended about 180 feet along a slope of 45°—50°, and found the subterraneous part very narrow and close, as the workmen were obliged to use lights, and those lights were torches.

The Lomba was unwatered by a pump which John Mawe

sketched in 1801, and which Caldcleugh compared with the irrigators of China. This Caixão de Rosario, or Macácu,* borrowed from the Hunde, or Hundslauf of Freyberg, is on the principle of elevating-buckets: squares of wood disposed at intervals in endless string, passing up a long narrow trough, which they fit tightly, and working over the axle of a water-driven wheel, raise the drainage. As I have before remarked, the only labour-saving machine bequeathed by Portugal to the Brazil is the wretched old Monjolo-mill, rudest of Oriental contrivances. The art of mechanics is at as low an ebb as on the southern shores of the Mediterranean, and we still recognise the appliances described by Piso and Maregraf in 1658. I found in the most civilized diamond-diggings of Minas Geraes no trace of kibble, crane and pulley, or rail, no knowledge of that simplest contrivance a tackle; the negro was the only implement, and he carried as much as a schoolboy would stuff into his pockets—a pair of buckets would have done the work of a hundred such men. Even the Hindus used great wooden wheels turned by hand labour to work the steel plates upon which the diamond was cut. Important improvements, however, can come only from the example of a more constructive race. I was asked my opinion about the system, and suggested a few of the simplest modifications; they were found to be unpractical, and did not meet with favour. In this point many Brazilians resemble the phrenological patient, who will swallow unmoved the largest draughts of “soft sawder,” but who makes wry faces when it is suggested that a single organ may be “somewhat deficient in development.”

We breakfasted at the Lomba with new appetite. The meal is usually eaten at a late hour by mine-owners and diamond-diggers, who give the greater part of the forenoon to their work. The style is very patriarchal. The head man sits at the top of the table and drinks from a silver cup, whilst all his overseers are ranged along the sides, and disappear immediately after coffee. Despite the “difference” about machinery there was no want of cordiality on the part of my hosts.

From this Serviço we made for Diamantina by a vile line some

* Former travellers describe the Macácu as a “series of wooden cogs passing up a square trough.” Mawe, vol. i.,

French Edition, has given a sketch of the machine.

twenty miles long, leaving the highway on the west. Happily for me I was mounted upon a mule as good for bad as it was bad for good, roads—not an unfrequent case. The only bridge was broken, and the muds were deep; the bridle-path was all up and down, and the banks were unpleasantly steep. The vegetation, Peroba and Copahyba, Monjolo and Braúna,* seemed to be as hard and stony as the soil, here justifying the popular belief in the concomitance—or perhaps I should say, the consequence. We passed to the left of the Maravilha, or Wonder-Mountain, which here appeared to be divided into two lumps. That to the north-west had a sheer fall of immense height, a grim, dark wall, up which only an insect could creep; from the south-east the ascent is probably easy. At the base were white holes and heaps awaiting the rains, and the summit was feathered with vertical slabs of stone emerging from the thin scrub.

Under a broiling sun we pursued our way over the barren hills that bear the diamond. We passed sundry forlorn-looking thatched hovels, at this season all deserted. The first stood near the Ribeirão do Inferno, where certain wet-weather diggings called Mata-Mata,† belong to Sr. José Juliano and Company. The next were the washings on the tributary Ribeirão do Palmital; they are the property of the Collector Sr. Venancio Morão. Shortly afterwards we struck the southern highway by which we had left Diamantina, and between the gloaming and the mirk we found ourselves once more under the hospitable roof of Sr. João Ribeiro.

After this experience of two days we may venture to set right Mr. Harry Emanuel, who, in his carefully written book,‡ almost ignores the Diamantine formations of Minas Geraes in favour of Bahia. Thus for the last three years the cotton of São Paulo has, much to the disgust of the Paulistas, appeared in the London market misnamed “Rio Cotton.” § Minas began her labours

* Often written Graúna. The latter is also the name of a bird with shining black plume, from Guira (avis) and una contracted from pixuna (nigra).

† “Lorsque l'on découvrit des diamans dans cet endroit, le peuple s'y précipita en foule; des rixes s'engagèrent, et de là vient, dit-on, le nom de Matamata (Tue-tue).” St. Hil. (II. i. 64), from Spix and Mart. Reise i. 452.

‡ *Diamonds and Precious Stones*, by Harry Emmanuel, F.R.G.S. London: Hotten, 1865.

§ “Provinces like São Paulo, where a foot of ground had never before been planted with cotton,” says Prof. Agassiz (*A Journey in Brazil*, p. 508). But the Province of São Paulo has ever been celebrated for her cotton cultivation.

with the seventeenth century, and in 1732 the Lisbon fleet carried to Europe 1146 ounces of precious stones. We read (p. 59) "In 1754 a slave who had been working at (?) the Minas Geraes was transferred to the district (?) of Bahia," and that thus emigration set in and exploitation began. But the great Province of Bahia commenced to work her Chapada or diamantine plateau only in 1845—1846. In the same page we find "the most productive district is at the present time the Province of Mato Grosso, in the vicinity of the town of Diamantina." This must refer to the city which we have just visited in Minas Geraes; the Mato Grosso diggings are called (Rio, Arraial or Sertão) "Diamantino."*

* *Memorias Historicas* (Pizarro, ix. 19, 20, 21, &c.).

CHAPTER IX.

THE DIAMOND MINE AT SÃO JOÃO.

THE BRANT FAMILY—"DURO."—RIDE OUT.—"LE SPORT."—DIFFERENT KINDS OF DEER.—REACH THE ARRAIAL OF SÃO JOÃO DO DESCOBERTO.—RAPID FEEDING.—THE DURO MINE.—THE BARRO MINE.—ENGAGE "O MENINO," THE NEW PADDLE.

"C'est dans ces lieux sauvages que la Nature s'était plu à cacher la précieuse pierre qui est devenue pour le Portugal la source de tant de richesses."—*St. Hil.* II. i. 2.

MR. GORDON had supplied me with "recommendations" to the brothers Lieutenant-Colonel Felisberto Ferreira Brant, and Major José Ferreira Brant. The family is descended from an ancient governor-at-arms of Bahia, and, as may be seen in Southey and St. Hilaire,* has taken a prominent part in the exploitation of diamonds. The Major has a store at Diamantina, and the Lieutenant-Colonel, during the temporary absence of his son-in-law, superintends the important digging of São João. It lies north-north-west of the city. I was threatened with the worst of journeys, but the reply was, "There is no good pasture or bad road in the dries; there is no bad pasture or good road in the rains."

About noon I set out, "convoyed" for a short distance by Major Brant; M. Sipolis had half agreed to join me, when the theft and flight of the negro slave-cook who fed the Episcopal Seminary required his presence at home. Passing through the Curral and by the Alto da Cruz, where the prospect was the more enjoyable because now I understood its details, we struck the high road to the west of the city. A party of young chas-

* Joaquim and Felisberto Caldeira Brant, says Southey (iii. 624), were rich miners of Paracatu. Under the Count de Bobadella, the second became the Third Administrator of Diamonds in Tejuco of

Minas Geraes, and both were bound to organise a "Serviço" of 200 negroes to work the two Diamantine Rivers of Goyaz. Felisberto, accused of malversation, died in prison at Bahia.

seurs, with guns thrown across their shoulders, was leisurely sloping along. An over-love for "sport" has done as much harm in the Brazil as the ridiculous "sparrow clubs" of a former day threatened to do to England. I have mentioned the prevalence of the ant plague since the ant-eater has been killed out, and the destruction of birds has increased the host of Carrapátos. The scenery, too, has lost in artistic beauty; the brilliant birds, as the Arára (Macaw), have disappeared from the coast, and taken refuge in the Far West. It is to be desired that amateurs would give ear to the sensible advice of Padre Corrêa, and attack vipers and jaguars, instead of slaughtering the Tanager and the Orpheus-thrush.

The cantonnier is not abroad in this part of the Brazil. The ascents and descents over the normal waves of ground, subtended by streams in sandy or rocky beds, with pure water or current dyed slate-colour by the washer,* were of the worst. The land was by no means deserted; many little mining stations were scattered about, and frequent snowy heaps denoted "Serviços." At 2.15 P.M. old Ferreira and I crossed the Córrego dos Morrinhos, and halted for coffee at the nearest ranch. The mistress of the house sat coiled up on her bed like a Hindostani woman, but her extreme communicativeness, and an approach to what we call "chaff," made up for want of graceful posture. The semi-Oriental and old Portuguese reserve begins to vanish as we enter the interior, and to a Northron the effect is decidedly pleasant. I did not ask the names of host or hostess, as they openly told me that I was the Chief of Police from Ouro Preto, and they were most anxious to know my business. They laughed to scorn the idea of my being an Englishman. "If this be true," they asked, "how is it that you do not know 'Nicholas,' † your countryman,

* The drainage is to the Rio Penheiro, which falls into the Jequitinhonha, six leagues below Diamantina. On the left bank of the Ribeirão dos Caldeiros is the Serviço known as the Retiro de João Vieira. The next important stream is the Córrego da Prainha; then comes the Córrego da Sepultura, an ill-omened name, common here.

† Amongst the Southern Latin races generally, and especially the Hispanian, the individual is known by his Christian name only; and as this must be taken from some saint, and as saints are few, nicknames are common. The family name, which we use, is mostly neglected, espe-

cially in the case of northern strangers, whose cognomens are so often unpronounceable by southern organs; and thus the foreigner is perpetually in a fix. Even neighbours who have known one another for years often ignore all but the prenomens. The practice is of old date.

"Quinti," puta, aut "Publi," gaudent prænominē molles

Auriculæ?

The surname also was rarely used amongst us in the days of the Plantagenets, and until the last fifty years the Christian name was that of the people in certain of our rural districts.

who is living within musket shot of us?" He was, they insinuated to me, one of the "perdidos," the lost ones, a poor wretch who spent his life in squalor and in liquor, when obtained by some precarious job. However, they gave me a good brew of coffee, and sent us on our way rejoicing.

We then crossed a long plain, a most likely place for game: only one Campeira, or prairie deer (*Cervus campestris*), showed at a considerable distance; giving good venison, it is much hunted. Castelnau mentions the Campeiro, and Prince Max. (iii. 109) suggests that it may be the Mataconi of Humboldt, the Cerf du Mexique (*C. mexicanus*) of naturalists, and the Guazati of Azara, who speaks of a white variety (albino?). It prefers plains to forests, and runs with frequent bounds. The size is about that of the roebuck; the tail is short, and the coat is a reddish brown. Here the people declare that it is the female of the Galheiro, whose large antlers prevent it from entering the bush, and whose flesh is fetid. It is the Çuçuapara* of the Tupys, and the Guazupucu of Azara; according to the older writers, it attacks man at certain seasons. This deer haunts the prairie and the marsh. It is short tailed, and about the size of a yearling calf. Its flesh is eaten in January, February, and March, after which it is said to be offensive. The favourite form is "Moquendo," † roasted on the embers. The Mateiro, or forest deer, the Guazupita of Azara, called by the Tupys "Cuaçu rete," or "true deer," is of all the most common species; it is white tailed, and stands about the height of a sheep; the dry, hard, lean flesh much resembles that of the cow (*Carne de Vaca*), especially the old cow. The Catingueiro, literally the Stinker ‡ (*C. simplicicornis*), the Guazubira of Azara, lives, like the preceding, in woods and well-clothed valleys. It is supposed to shed

* More correctly Çuaçu-apára, a word applied to both sexes. The Tupy Dict. declares that it has large horns, and feeds in the Campos.

† Amongst the Botocudos, "bacan," pronounced "bacoun," meant flesh; and the Tupys had "mocaém," to toast in the flame. In Tupy also, according to Sr. J. de Alencar, Bucan was the implement with which meat was roasted, and the origin of the French boucaner. The indigenes smoke-dried their meat-provision for journeys or campaigns by hanging it upon a little gallows over a wood fire, or by suspending it to the fuliginous thatches of

their huts. Hence is derived the Brazilian "moquem" and the verb Moquiar (St. Hil. III. i. 269), synonymous with the boucan of the buccaneers. Moquem has become the name of many country places in the Empire.

‡ So the word was explained to me by Dr. Alexandre. The Tupy Dict. writes Çuaçu-caatinga, the deer of the second growth (*Mato rasteiro*). St. Hil. (I. i. 337) makes the fetor proceed from "une matière d'un vert noirâtre que remplit une cavité profonde que l'on trouve entre les deux sabots des pieds du derrière."

its very short, straight, branchless horns; it is dock-tailed, and the brown-coated body is apparently too heavy for the slight legs, which are disposed at an angle fitting the animal for long high buck-jumps. In shape it resembles the Pallah, or hog deer of Sindh, and even the Brazilian rodent "Paca" (*Cœlogenys Paca*). Besides this, I heard of a marsh deer (*C. paludosus*), the *Çuaçú-pucu*, sometimes erroneously written *Guaçu pucu*, and the rare *Bíra*, a small red deer which is said, when pursued, to leap upon a tree branch. But the fallow deer mentioned by Mawe have not yet been discovered, nor have the antelopes which Koster has placed in the New World.*

Creeping up a bad hill, pitted with the deep gutters, and dotted with the loose stones of the normal Itacolumite, we saw, far to the left or west, amongst the peaks of the Cerro Frio group, the curious formation known as the Tromba d'Anta, the Tapir's trunk.† From this point it much resembles the Itacolumi of Ouro Preto, a huge monolith raised at an angle of 50°. Another hill, and below us on the left was the large mining establishment known as the Chapada. Yet another long slope and we struck a high grassy plain, where nothing taller than a foot could face the fierce north wind, which caused the leaves to droop in the lower levels, whilst the fiery sun made the wild flowers shrink and wither. Here we sighted the Arraial of São João do Descoberto, considered to occupy the highest site in the Municipality.

The village lies in a shallow hollow close to the mines which made it. To the west is the "Morro Redondo," a dwarf quoin crested with a tall cross; eastward is the cemetery, also with its cross. The single street boasts of a humble wooden chapel in a dwarf square. The "Almanak" (1864) gives it 2000 souls and 300 houses, a figure which I should divide by two. The tene-

* I have seen a large red skin brought from Rio Grande do Sul; the people had no name for the beast but *Cervo*. The Tupy Dict. gives as the native names of the *Cervidæ*: 1. *Çuaçú-tinga* (white), the smallest. 2. *Çuaçú Cariacu*, so called from its sleeping in the thickets, and showing only its back. Ferreira explains the word as "Caa," foliage, "ri," many or much, and "acú," that exposes itself. 3. *Çuaçú Anhangá*, the devil-deer, so called because its flesh is held to be injurious to those suffering from fever or

syphilis.

† The Portuguese, who ignored the Tapir, called it Anta, or buffalo (F. Denis, Anta or Danta "buffle"): thus their ancestors had named elephants Lucanian bullocks. On the other hand, the Tupys, never having seen black, called the bull Tapy'ra oçu (big Tapir), and the calf Tapy'ra Curumim Oçu (Pappoose of the big Tapir). We have corrupted the word Tapy'ra to Tapir; Brazilian purists prefer Tapyr.

ments are the usual *taipá*, mostly whitewashed, of the door and window order, very narrow and somewhat deep, roofed with thatch or tile. Each has a large "compound" to defend the vegetation from the rudest Boreas; the material is puddle or dry stone, here and there eked out with stakes and other contrivances.

Turning to the right we made a crest our "espigão mestre," whose watershed is north to the Jequitinhonha, and south to the Rio das Velhas. On clear days it commands a view of about eighty miles in diameter. To the west is a bald Campo, eastward lie piles of jagged rock; in front, placed for shelter a little below the hill, stands a long, low, single-storied house, with a small chapel at one end, and looking upon a tall black cross, a pit full of muddy water, and a vegetable plot enclosed to keep off animals.

According to custom my Camarada had ridden forward with my letters. The mistress of the house met me at the door, and hospitably asked me to dismount. I found the host dining with sundry men and youths, relatives and employés. The work of refreshment soon over,* we repaired to the digging. It is known as the Duro Mine, because when the diamond was first "won" the sinker had met hard ground—presently to become soft and sippy as that of the neighbouring pit.

We found a large hollow, which at first glance suggested the *Esbarrancados*, or water-breaches, so numerous in Minas Geraes. The shape was an elongated horse-shoe, with the major axis disposed from south-west to north-east, and the heel draining towards the Jequitinhonha River. The maximum depth may be ninety feet, the breadth 300 yards, and the length about double. The material is a hardened paste of clay, whose regular and level stratification argues it to have been deposited in shallow water. The eastern side of the gap is the more ferruginous formation

* Brazilians eat nearly as fast as the citizens of the United States. I have met only one who "took time over his meals;" and indeed this is the rule of the world. In the nearer East a man sits down with a pious ejaculation, swallows his quantum, ends with drinking water, rises with another pious ejaculation, washes his hands, and with frequent eructations, applies to his pipe. Those who amongst us write "Manuals of

Health" never forget to dwell pointedly upon the necessity of food being thoroughly well insalivated before it is swallowed, and they allow at least half an hour to each meal. I presume that the necessity, if it exists, arises from the artificial habits engendered by civilization, and the practice of eating frequently and at regular hours when the stomach does not call aloud for another supply.

(terra vermelha); on the west it is mixed with beds of white sand. Below one foot of brown soil the argillaceous matter has the usual staining and marbling, glaring white like fullers' earth with felspar and kaolin, chocolate-brown or rapé-coloured with organic matter, blue-green with traces of copper, pink and rose-purple and dark yellow with various oxides of iron, especially hæmatite, and dark steel colour with oxide of manganese. Thus old travellers describe the diamantiferous pits of the "Mustapha nagar cirar" as a peculiar fat white clay associated with iron-stone.

We zigzagged down the easy slope of the eastern wall, which everywhere bore marks of the pick. Here the "hydraulicking" of California, where a fall of water hollows out chasms 250 to 300 feet deep, might be applied with great advantage. The richest lode (corpo) is No. 3, or the highest. The strike of the ribboned clays is north and south, bending eastward. The lode inclines towards the higher grounds, and thus the owner hopes to find the gem-bearing strata spreading over the crest or watershed ridge which forms his property. Through the ferruginous sandstone (borra) and the white felspathic matter run dykes and lines of fragmentary rock crystal, sometimes fibrous like arragonite, and often finely comminuted. Large pieces of imperfect specular iron and thin strata of quartz, yellow and brown at the junction, thread the argile, and I was shown a specimen of fine sandy conglomerate, blackened and scorified by the injection of melted matter. The characteristics of this upper lode are a drier clay, silica, a trace of copper, of iron-cement, and of Canga in small pieces; when the specular iron is in large pieces and abundant the rock is rich in gems. Its "agulhas" are iron-like bundles of needles welded together by intense heat: some are double, the fibres coming at obtuse angles. The "Agulhas Cór de Ouro" have a burnished coppery surface, whence the name.* Throughout all these corpos the diamonds are small, averaging perhaps a little under one grain, or 64—72 per oitava; they are mostly crusted superficially with a light green tinge.

Lower down we came to the middle or second body. Here the "tauá" (felspathic clay) was stiff and sandy, marbled with a fat, blue, muddy marl, which leaves upon the fingers a greasy steely

* The owner informed me that he had sent specimens of all his minerals to the Institute of Civil Engineers, London.

streak. It also yields a dark olive-green argile harder than the rest; like all the others it has consistency in situ, but when removed it crumbles to pieces after drying. Lieutenant-Colonel Brant gave me from this corpo a fragment of hard large-grained clay, reddish coloured with oxide, and showing a small brilliant imbedded in it.

We then descended to the lowest formation. Here the clay contains very little sand, and much stained; the colours are white and blue, red and yellow, rosy, spotty, and in places dyed as with blood. Here also are found the "Agulhas" in streaky bundles of iron like asbestos. The sole of the pit is uneven with working, and in places "horses," "old men," and long walls of stiff clay have been left standing amongst the holes and gashes. From this point the several lodes were distinctly traceable in the walls of the basin. A deep draining trench divided the length, and at the north-eastern end was a washing place, a shallow, muddy pool, faced by two concentric circles of staked fascines, to prevent the slime from falling in.

We then walked to the north-eastern end, and found traces of Messrs. Rose and Piddington. Rails, 600 fathoms long, had been laid down, and a white-washed towerlet denoted the engine-house, where a raising pump of three-horse power enables the mine to work throughout the year. The washing apparatus under the neighbouring shed consists of a "batedor," or stone-faced pit, eighteen feet long, nine broad, and eight deep; the clay tilted in it by the "trolleys" is here first puddled. Thence a stream of running water washes it down a succession of bolinetes or bulinetes,* coffin-shaped troughs like Canôas, but much larger. They are revetted with masonry, and each is provided at the lower end, where the slope is, with a batten or cross piece of wood to prevent the heavier substances from being carried down stream. Very few hands were at work. Formerly the Duro employed upwards of one hundred negroes, a number now reduced to half, and looking very "small" amid the vast area.

In the evening the host discussed the celebrated Rabicho of the Jequitinhonha River, seventeen leagues from Diamantina City. The "crupper" takes its name from a sacco or bend, across which a cutting of one mile would expose five miles of highly

* St. Hil. (I. i. 255) makes the diamond "bolineté, un canal de bois beaucoup plus court et plus étroit que ceux dans lesquels on lave le cascalho."

adamantine bed. A plan of this place has been made by Mr. Charles Baines, C.E., and also a concession to exploit it has been granted to the Commendador Paula Santos. Unhappily the law in its unwisdom requires that companies for working diamond-diggings must be composed of at least an equal proportion of Brazilians to strangers. This is verily a relic of the old narrow-minded colonial exclusiveness—it is not easy to see why the diamond-coin should require an especial regulation.

Early on the next morning Lieutenant-Colonel Brant took me to visit the Mina do Barro, belonging to Lieutenant-Colonel Rodrigo de Sousa Reis, a wealthy mine owner, who is part concessionist of the Caéthé Mirim. We gained the Espigão mestre, the great “Wasser-schied,” and found lying *dos à dos* with the Duro, another similar quarry, but somewhat larger and deeper. A narrow slip of land was preserved for a path between the two, but this will probably soon disappear, as Lieutenant-Colonel Brant’s prospects are best in this direction. It was a strange view to one standing on the crest, with the two painted pits yawning on either side, and stretching away into the distance. On the further bank of the artificial ravine lay the owner’s house; the large, pale clay square of buildings, with courts and outhouses enclosed, as if for defence, reminded me of a fortified village in Ugogo. We found nothing new in the “Barro;” like the Duro it was drained by a trench; the washing pit was prevented from caving in by stakes and fascines. A few negroes were removing, under an overseer, the clays, coloured and white (Jiz), which serve as guide to the diamond formation; and there was a steam pump of four-horse power, with a tall useless engine turret.

This diamond digging was discovered at a time and place when and where no one dreamed of looking for the gem. An old woman, who was in the habit of panning Cascalho gravel in a little trickle of water from the gap, found that the precious stones extended into the blue argile (barro azul). About thirty-three years ago the digging was begun with a will, and presently it passed into the hands of the actual owner, who has employed as many as two hundred head of slaves. Other similar diggings came to light, and the wealth was such that sometimes an owner would exclaim, “O my God, are you doing this to cause my loss?” The Duro is the legitimate offspring of the Barro, begotten, seven

to eight years ago, by Lieutenant-Colonel Brant, who judged, naturally enough, that if one side of a clay slope be productive, so might be the other. As has been seen, the progeniture has thriven.

* * * * *

I left the Diamantine region, including the Duro mine, with regret. Socially speaking, it is the most "sympathetic" spot in the Brazil, according to the light of my experience. With an "enemy in the fortress" traitorously urging delay, it was not easy to escape from its hospitalities. My plea was the absolute necessity of an Englishman being punctual; I had promised to be at Bom Successo before the eleventh day, and the promise must be kept. This requirement is universally recognized throughout the Empire. Lieutenant-Colonel Brant accorded to me a reluctant dismissal, and the amiable Senhora charged me to return, and loaded me with kind messages to an unknown, and what might have been a theoretical, or even a hypothetical wife.

Old Francisco Ferreira was in no hurry to take the road once more. He was paid by the day—1\$000—and thus interest combined with inclination to urge a little laziness. But neither cough nor groan, nor euphuistic phrase of the old eloquent, nor muttered anticipations of "Corrubiana in the bones," was of the least avail. I struck the direct road viâ Guindá to Bandeirinha, and on Thursday, September 5, 1867, after a day's ride of forty miles upon jaded beasts, that now fell twice every twenty-four hours, I found myself within the pleasant walls of Bom Successo.

As my Jaguára pilots did not profess to know much of the stream below this point, I engaged, with the assistance of Dr. Alexandre, a third paddle. He answered to the name of Antonio Marques, but was better known as "O Menino," the "Little 'un," because he was peculiarly tall, broad, and raw-boned, "a long, hard-weather, Tom Coffin-looking fellow;" moreover, he was grim and angry-looking as a Kurdish "irregular cavalryman." He had begun life in English employment at the Vão Mine, near Diamantina, and he had mastered more than one northern habit, such as drinking and brawling. He had learned the world, he had travelled half-way down the São Francisco, and had struck overland to Piahy; he had run up north as far as Maranham, and he had even seen a steamer. His price was somewhat exorbi-

tant—2\$000 per diem, and he vainly attempted to instal himself as pilot by ousting the good old “Chiko Diniz,” who was worth a dozen of him. He greatly preferred conversationizing to rowing, and drink to both. My temper was sorely tried by him, but I kept it till we reached Varzêa Redonda.

CHAPTER X.

NOTES ON THE DIAMOND.

DIAMANTINE LANDS IN THE BRAZIL, WHERE FOUND.—PROSPECTING FOR DIAMONDS.—CONCESSION TO WORK.—PERFECTION OF THE DIAMOND.—DEBATED ORIGIN OF THE STONE.—REFRACTION, TESTS, ETC.—WHERE FORMED.—DIAMOND GROUNDS.—DIAMOND “FORMAÇÃO,” OR STONES THAT ACCOMPANY THE GEM.—NOTE FROM M. DAMOUR.—SHAPE OF DIAMOND.—ITS COLOUR.—ITS FLAWS.—THE WEIGHTS AND PRICE.—ABOUT “BOART,”—CELEBRATED BRAZILIAN STONES.

“The substance that possesses the greater value, not only among the precious stones, but of all human possessions, is adamas, a mineral which for a long time was known to kings only, and to very few of them.”—*Pliny*, xxxvii., Chap. 15.

DR. COUTO (p. 127) described the diamond diggings of Bagagem which he visited, and named Nova Lorena, after D. Bernardo José de Lorena, Count of Sarzedas, and eleventh Governor or Administrator of the Minas Geraes captaincy. These lands, he shows, are of greater antiquity than the countries near the coast, as is proved by their degraded and water-washed forms. They are also the easier to work, having more of plain ground and larger rivers. The crystallisations of the Cerro or Diamantina diggings have smoother facets and sharper angles, whilst the yield is more regular and constant. On the other hand, the stones are small; 1000 oitavas hardly produce a single gem of one oitava. From Bagagem many stones, varying between three and six oitavas, have been taken, but by jumps, as it were. The water is fine and brilliant, but the shapes are more rounded and more deeply flawed, the effect of longer weathering and more water-rolling. Castelnau (ii. 231) describes, in 1844, the diamond diggings of Goyaz, on the Araguaya or Rio Grande. We lack, however, a modern description of the Diamantino diggings near Cuyabá, in Mato Grosso, and of the Bahian Chapada. The latter Province extends its wealth almost to the seaboard; gems have been found

within one or two leagues of São Salvador, at the Engenho do Cabrito, and at other places near the railway. The Caldeirinos of Parahy, thirty leagues from the São Francisco River, and the lands between Crato and Icó, in Ceará, require inspection. I shall presently allude to the formation on the lower waters of the great artery. In the Provinces of São Paulo and Paraná, the rivers Parahyba do Sul, Verde, and Tibagy, have produced diamonds, whilst the best indications are found near the coast about Ubatúba.

Evidently the Brazil has a vast extent of diamantine ground reserved for future generations to work with intelligence, and especially by means of machinery.

Prospecting for diamonds is done as follows: The vegetable humus, the underlying clay, and the desmorte, or inundation sand, are removed with the almocafre, till the labourers reach the gem-bearing "cascalho," or "gurgulho." This first work is usually an open cut of a few feet square. The larger fragments of quartz are then removed by the hand, the gravel is washed in a "báco," "canôa," or "cuyaca," and, finally, the batêa is used.

After the prospecting (provas) a concession to work diamantine ground is directed to, and is easily obtained in these days from Government. The applicant specifies the limits of the extent which he proposes to exploit. The land is put up at public auction, any one may bid, and it is knocked down to the highest offer. The owner of the soil has the right of pre-emption, and if only 0\$200 per braça (Brazilian fathom) be called, the proprietor can take it. After the death of the concessionee, the digging is inherited by his wife, his children, or, in default of other heirs, by his brother. For the use of the reach* in the Rio das Pedras, 13,000 braças long, Sr. Vidigal pays a tax of 1\$000 per thousand, and Dr. Dayrell, within whose limits the Canteiro is, might for that sum have exploited it had he so pleased.

The diamond,† say old writers, unites all perfections: sparkling limpidity, lustrous brilliancy—the effect of its hardness—

* "Tiro do rio."

† M. Caire (La Science des Pierres précieuses, Paris, 1826,) observes that the word is derived from *adauas* (in Arabic and Persian, *almas*), "indomptable"—*nullâ vi domabilis*, because not to be conquered by fire. This is true

only when the oxygen of the atmosphere is excluded from it, and when the heat is under 14° Wedgewood. He also notes that our modern word "diamond," "diamant," &c., by rejecting the "alpha privative," etymologically signifies the reverse.

the accidental colours of the rainbow, reflections that come and go with the vivacity of lightning; and, finally, it has "as many fires as facets." The structure is of thin shining plates closely joined, and thus it is easily split along the line of cleavage, which is parallel with the planes of the octahedron or dodecahedron.* The substance has been proved to be crystallised carbon,† but the origin is still debated. Some believe that the vapours of carbon, so rich during the sandstone period, may have been condensed and crystallized into the diamond. Newton, it is well known, argued from its great refractive power that it is "probably an unctuous substance coagulated." For reasons which will presently appear, it is evidently younger at times than the formation of gold, and it is possibly still forming, and with capacity for growth. Others have conjectured that the Itacolumite matrix may have been saturated with petroleum which has gradually disappeared from oxidation or otherwise, except where the carbon has collected into nodules, and has formed the gem by gradual crystallization.‡

As has been shown, the specific gravity of the diamond varies from 3·442 to 3·556, quartz being 2·600, and water 1·000; hence it is easily washed, and a practised hand distinguishes it by the weight. The index of refraction or quotient, resulting from the division of the sine of the angle of incidence in the vacuum by the sine of the angle of refraction in the vacuum, is equivalent to 5·0,§ water and plate-glass being 1·50, sulphur 16·0, and bi-sulphide of carbon, the most refractive liquid at present known, 37·0. According to Sir D. Brewster it slightly changes the light passing through it: older authorities remarked that it decomposes light into its prismatic colours, and shows a distinct phosphorescence after being exposed for some time to the sun, imbibing luminosity even through leather. Rough or polished it acquires by friction positive electricity, other precious stones

* Thus the test of striking with a hammer, often applied by those who have heard that the diamond is of extreme hardness, has destroyed many valuable gems. They were split with the grain or in the plane of the crystals. That "shocking the diamonds" (with iron levers) "causes them to be flawed" was taught by the Hindús to Tavernier. The file roughly applied to the girdle or edge is likely to chip it.

† It was, and perhaps still is, believed that a dissolvent of carbon is alone wanted to make the artificial diamond.

‡ I have seen it popularly stated that flexible Itacolumite is the matrix of the diamond, which is undoubtedly incorrect. Nor I believe do any of the Itacolumites contain petroleum.

§ It has been stated to be as low as 2·439 (Brewster).

being negative in the rough, and positive only in the polished state.* Old authors remarked that the gem when placed in the magnetic line of the loadstone neutralizes the attraction to a considerable degree. Most precious stones will scratch glass; the diamond cuts it with a peculiar creaking sound, hence this is a favourite test.† Another is the peculiar shock of diamonds rubbed together, which is more or less sonorous according to the hardness of the stone:‡ this, however, requires long practical acquaintance. It gives to the hand a sensation of cold, a property shared with it by many other stones, and notably by rock crystal. Finally it is said that the diamond is the only stone which can scratch the sapphire.

As regards the matrix of the diamond, many popular errors are still afloat. It has been washed mostly in the "Cascalho" gravel brought down by streams and deposited either on the banks or in the beds. Hence books have determined that "the diamond is always found imbedded in gravel and transported materials whose history cannot be traced." Others are of opinion that the diamond was formed in the alluvial and arenaceous matters that accompany the Tertiary and Quaternary epochs. The accurate M. Damour, who wrote two conscientious papers § upon the diamantine sands of Bahia, tells us (p. 11) "Ces roches cristallines, servant autrefois de gangue au diamant, ayant été brisées et en partie détruites par l'effet des commotions qui ont remué et sillonné la surface du globe, à certaines périodes géologiques, ne se montrent plus qu'à l'état de débris et de matières arénacées." Professor Agassiz (A Journey in Brazil, 501), "is prepared to find that the whole diamond-bearing formation is glacial drift." This, however, is qualified by—"I do not mean

* The electro-magnetic current strongly affects the diamond. I spoiled a fine rose-cut stone by allowing the ring to remain upon my finger when using a Meinig's chain. My attention was aroused by a peculiar rasping sound, and I found the corners of the diamond chipped and ground off as if a rough file had been applied to a bit of glass. Perhaps this may prove a labour-saving method of treating stones which require to be much cut. The "Odylic Sensitives" of Reichenbach see when "magnetized" a brilliant white light proceeding from the diamond; and hence probably the idea that precious stones had specific virtues.

† Diamonds, especially those with acute angles, have been injured by violent rubbing upon hard substances. Pliny's process of testing them by anvil and hammer may easily split them.

‡ I have heard this asserted by some diamond merchants and denied by others.

§ Bulletin de la Société Philomatique, 5 Février, 1853, and Bulletin de la Société Géologique de Paris. 2^e Série. Séance du 7 Avril, 1856. It is regrettable that sands from other parts of the Brazil, from the Ural, from Hindostan, and from the Borneo have not been sent to this savant.

the rocks in which the diamonds occur in their primary position, but the secondary agglomerations of loose materials from which they are washed."

Many authors have mistaken the secondary for the primary formation of the diamond. The gangue, about Diamantina at least, is the white and red, granular and quartzose Itacolumite, which has been weathered and worn down by geological commotions.* This was suspected by Dr. Gardner, who observed that the matrix of the stone is not the "diluvial" gravelly soil, but the metamorphic quartzo-schist rock. It is not unknown to the people: the general idea is that the hard sandstone "pissarra" or psammitic grit bears diamonds when old, but not when new. The fact is easily proved. All the diggings which are not near or in rivers, lie at the base of some stony mass.† Diamonds have been found in the Itacolumite by several hands, and finally I have sent to England a specimen embedded in Itacolumite. Perhaps the day will come when the rock will be spalled, stamped, and washed for diamond-dust as if for gold.

According to miners in this part of the Brazil the best diamantation (to borrow the native term) is found in the gurgulho, breccia, or loose pudding of angular stones.‡ Wonderful tales are told of its wealth, how the discovery of five or six gems was made by pulling up a handful of grass—the picturesque detail has, since the days of Potosi, become a favourite legend, and has ever been carefully collected by the popular writer. The choicest specimen of a digging of this kind is said to be "O Pagão," at the head waters of the Caéthé-Mirim near São João. The next best supply (Mancha de diamantes) comes from the "Cascalho," which has been compared with boiled beans: of this the Rio das Pedras is an instance. The third habitat which we have visited at São João is the "barro" formation, which seems to contain all the others, mixed and degraded. It must, however, be borne in mind that the diamond grounds greatly vary in a country so immense as the Brazil. §

* In the crystalline Itacolumite I have not seen the diamond, but I can hardly doubt that it exists there.

† So Tavernier, speaking of the Gani or Coulour Mine, under the King of Golconda, where 60,000 souls were employed, remarks, "The place where the diamonds are found is a plain situated

between the town and the mountains, and the nearer they approach the latter the larger stones they find."

‡ Castelnau (ii. 323) declares of the diamond-diggings of Diamantino (Mato Grosso), "Il n'y a jamais de diamant dans le gurgulho" (gurgulho).

§ Dr. Davrell described it to me in the

As various are the indices of diamonds (*pinta em diamantes*), and almost every digging yields some novelty.* The chief signs of many are here given in order of importance, and their name united is the *Formação Diamantina*, Diamantine formation.

Cattivo (the Slave), of old called “*escravo do diamante*,” and supposed to accompany it, as the pilot-fish does the shark. This includes at *Diamantina* bits of transparent, semi-transparent, or rusty quartz, *silex*, rock crystal, and especially *spinelle*.† The latter is transparent or semi-transparent, octahedrous (*Cattivo oitavado*), and with tolerably regular facets (*facetadas*); it is distinguished from the diamond by its want of fire and inferior hardness. The “*Cattivo Preto*,” or black slave, is probably Titaniferous iron, and the miners believe that when occurring in quantities it betrays the presence of black diamonds. These *Cattivos* in places are found strewed over the ground; they show that the diamond may be there, not that it is there. The same has been said of quartz, the “flower of gold.” The word is applied to very different formations. Dr. Pohl translates it “*thonseisenstein*,” oxidised hydrate of iron or the limonite of *Bendant* (*St. Hil. III. ii. 144*). A practical miner assured me that at the *Chapada* of *Bahia* “*Cattivo*” includes zoned

Serra de Graõ Mogor of *Minas Geraes*, a lode of soft sandstone, one foot broad, in containing walls of hard *Itacolumite*. He gave me a specimen of sand from *Brocotú* or *Brucutú*, near *Cocoes*, where spongy nuggets of *Jacutinga* gold abound; it contains a small diamond, a ruby, a sapphire, and iron pyritiferous as well as specular. The curious formation called “*Boart*,” and of which I shall have more to say, is also local. At *Diamantina* of *Minas* it is unknown, and *Bagagem* produces small quantities. It is found at *Sincorá*, the *Diamantine Chain* of *Western Bahia*, and the largest supply is from the *Chapada* of the latter Province. I have remarked that in many places gold accompanies the diamond. *Plato* believed that the diamond is the kernel of auriferous matter, its purest and noblest pith, condensed into a transparent mass. Thus also we may explain *Pliny’s* statement that “*adamas*” is a “*nodosity of gold*.” *Itacolumite* is also the matrix of the topaz and the ruby. A specimen of the latter was shown to me: it was a small square stone of tolerable water, but too light in colour, not the real “pigeon’s blood” of *Asia*. Garnets are found in handfuls, but they

are valueless.

* *John Mawe* (ii. chap. 2) describes the diamond-accompanying substances as “*Un mineral de fer brillant et pisiforme (ferragem), un mineral schisteux silicieux ressemblant à la pierre indiquée ‘Kiesel-Schiffer’ de Werner (?), de l’oxide de fer noir en grande quantité, des morceaux roulés de quartz bleu, du cristal de roche jaunâtre, et toutes sortes de matières entièrement différentes de celles que l’on sait être contenues dans les montagnes voisines.*” *Castelnau* limits the “*formação*” to three kinds—*Cattivo do diamante*, *Pedra de Osso*, and *Pedra Rosea*, a violet-coloured grit. According to *Tavernier* the *Hindús* judged the land diamantine when they “saw amongst it small stones which very much resemble what we call “thunder stones.”

† The Brazilian name of this crystal is, I believe, “*Saruá*.” Under this word, however, are probably included the hexahedrous fluor spar, corundum, and perhaps also certain titanates. The chrysolite suggests *Pliny’s* description, “never larger than a cucumber-seed, or differing at all from it in colour.”

quartz, chrysolite, bits of magnetic iron ore, iron pyrites, and so forth.

With *Cattivo* we must associate “*Siricória*,” elongated prisms of chrysolite (*Chrysoberil*, Werner, and *Cymophane*, Haiiy), of a faint yellow-green, sometimes almost white. Amongst the *Cattivos* on the São Francisco River I found a large proportion of straw-coloured topazes,* with sharp angles, and readily leading to error.

Pinga d’agua (St. Hil. I. ii. 6, “*Pingo de agua*”) “drop of water.” It is applied to rounded and cylindrical pieces of every size from a pea to a pigeon’s egg; some are white, others rusty; the drops are transparent, semi-transparent, opaque, or zoned. They include cornelian, white topaz, and more especially *quartzum nobile*. The small diamond-shaped stones are the most prized. With the *Pinga d’Agua* we must associate the balls of quartz, called from their shape *Ovos de Pomba*, or “doves’ eggs,” and the *pedras de leite*, “milk stones,” rounded and water-washed bits of *silex calcedonius* and agates. Both are clear and diaphanous, dull and opaque, or zoned and prettily marked with concentric undulations.†

Fava, a stone shaped somewhat like a broad bean, and varying in size from a pea to two inches in diameter. As a rule it is jasper, blood-stone, or one of the many varieties of white, brown, and yellow quartz. Many “*favas*,” however, are clay revetted with iron, one-half to two lines deep.‡ The *fava branca* and the *fava roxa* are sometimes of pure *silex* or of crystallised quartz. Several appear likely to supply good blood-stone for seal rings.

Feijão, a haricot-shaped stone, rounded and rolled. It is also of different sizes, and is mostly of *tourmaline* (*Schorl*) or *hyalo-tourmaline*, like that which accompanies the tin-mines of Cornwall. The colour ranges between dark green and black, and the people believe it to have been glazed by great heat.§

* The *Cattivos* may be compared with the Bristol or Irish diamonds so often associated with bog-oak. They have been frequently taken to Europe, but with little profit. It is said that they break when being cut.

† Mr. Emmanuel (p. 126) says, “These topazes (*i. e.*, of Minas Geraes), found in rounded pebbles, are perfectly pure and colourless, and are termed ‘*pingas d’agua*’ or ‘*gouttes d’eau* ;’ they are also termed *Nova Minas* (?). The Portuguese call them ‘*slave diamonds*.’” Here there is evidently a confusion between the quart-

zose “*pinga d’agua*” and the crystal “*Cattivo*.” The term “*Minas Novas*” is taken from John Mawe (ii. chap. 3.)

‡ *Marumbé*, or *Pedra de Capote*.

§ I believe that the *feijão* is sometimes of jade, axe-stone, nephritis or nephrite, because used by Hindús against “the pain of the kidneys.” The aborigines of the Brazil employed it as labrets and other ornaments, and made their hatchets of this fine apple-green mineral, which is known to be soft when first taken from the quarry, and to become tough and compact by exposure to the atmosphere.

Caboclo, mentioned by Dr. Couto (p. 64) as Pedras Cabocolas, and explained to be Ferrum Smiris and rubrum, red with dark stains (mesclas). This jasper or petrosilex takes its name from the dull yellow tinge caused by oxide of iron. It is compact, and feebly scratches glass. The surface is polished and lustrous, as if it had been in contact with excess of caloric; the usual colour is of dark or light yellow, opaque, and verging on brown; and there is no peculiarity of shape except that the fragments are mostly flat. There are many varieties of the Caboclo. The C. Oitavado is that which has angles. The C. bronzeado, common in the Barra da Lomba, is dark yellow. The C. Comprido is an elongated bit of jasper. The C. Roxo is a compact red sandstone, possibly altered by heat. The C. Vermelho, common in the Caéthé-Mirim, is apparently cinnabar.

Esmeril,* in shape resembling the feijão, is mostly oxydulated iron. According to the miners, some stones contain eighty to ninety per cent. of metal. Of this stone, also, there are many varieties. The Esmeril Caboclo has a dull yellow tinge. The E. preto, in Gardner's opinion, is a kind of tourmaline. The E. lustroso is almost pure iron, often welded by heat to a fine breccia; it sometimes resembles a black diamond, but it is amorphous. The E. de agulha is a long, thin strip of iron-stone.

Ferragem, or Pedra de Ferragem, is either flat, bean-shaped, nodular, or rounded like a bullet. It is mostly of oligistic or specular iron, of dark purple or lustrous black. I have seen some specimens which are iron pyrites, and others are bullets of silex, making good touchstones of velvet-black colour.

Pedra de Santa Anna, squares and cubes of magnetic iron that affects the needle. The name is also applied to copper pyrites, and this is often found degraded to a mere sand.

Osso de Cavallo, † "horse's bone," which it resembles in appearance and consistence. The shape is long or round like an osseous fragment, and it appears to be pure sandstone (granular Itacolumite?) which has long been buried.

Palha de arroz, "rice straw," a fragment of light yellow sub-lustrous chlorite, slate or hardened clay-slate, resembling a cucumber-seed.

* Not Ismirim, as Castelnau writes (iii. 178). "L'oxide noir de fer, appelé ici émeri," says John Mawe (i. chap. 12). Spix and Martius explain the word by "Eisenglanz."

† Pedra de Osso (Castelnau, ii. 323). This "horse-bone" must not be confounded with the "Pé de Cavallo" or "horse-hoof," a yellow jasper, which merits its name.

Agulha, or Agulha de Cascalho, Titanic iron, in bundles or in single needles.

Casco de telha, cinnabar or reddish clay, yellow inside, and showing mica and talc.

Pissarra folhada, schists of different colours, varying from a dull yellow white to black.

Pedra Pururucu, a light-coloured friable grit.*

* The following note is taken from the valuable paper of M. Damour (Soc. Geol. p. 542, April 7, 1856), describing the diamantiferous sands sent to him from Bahia. The numbers show the formations which occur most frequently.

1. Hyalin Quartz (the yellow is the occidental topaz, the blue is the occidental sapphire).

Jasper and Silex.

Itacolomite.

Disthene or Cyanite. This substance is easily distinguished; it is infusible by the blow-pipe, consists of little needles or thin-bladed crystals, the edges are rounded by rubbing, and the colours are pearl-grey, light blue and pale-green.

Zircon or Hyacinth, also found in the auriferous soil of California. This silicate shows well-preserved crystals more than a millimetre in diameter: it occurs in squares and prisms ending in four-sided pyramids, with the angles and crests sometimes modified. Some are colourless, others are brown, yellow, violet, or clear red.

Felspar, in rare water-rolled fragments of reddish matter, cleavable in two directions, which meet at right angles. It is not affected by acids, but is fusible before the blow-pipe. Melted with carbonate of soda it proves to be composed of silica, alumina, and a little oxide of iron, with probably some alkaline earth.

2. Red Garnet (almandine or precious garnet).

Manganesian Garnet (spessartine or deep red garnet). Density, 4.16. In dodecahedral rhomboids, very small bright crystals of a topaz yellow. The blow-pipe fuses it to a glass which becomes black and opaque in the oxidizing flame. The glass made with salt of phosphorus (microcosmic salt), and heated to redness with a little

nitre, shows manganese by assuming a dark violet tinge.

Mica.

Tourmaline (green and black.)

3. Hyalo-tourmaline (feijão). Density, 3.082, scratches glass feebly. Under the microscope it looks like a number of small needles crossing one another: the fracture is fibrous. The dust is of greenish grey. Heated in a glass tube it disengages a little water: melted with borax, it gives a reaction of iron, and before the blow-pipe it swells and fuses to a brownish black or dark green scoria, which, after being subjected to burning charcoal, becomes slightly magnetic. The scoria can be decomposed by boiling in sulphuric acid; and burnt in alcohol it gives a green flame, showing boracic acid. Analysis also yields silica, titanite acid, alumina, magnesia, a trace of lime, soda, water and volatile matter. It differs from black tourmaline only by the presence of water and titanite acid.

Talc.

4. Hydrated phosphate of alumina, or Wavellite (Caboclo). Density, 3.14 in Diamantina and Abaeté, and colour a coffee brown. Density, 3.19 in Bahia; tint rosy or brick-red, and shape rounded galets. Composition, phosphoric acid, alumina, a little lime, barytes, oxide of iron, and 12 to 14 per cent. of water.

Phosphate of white yttria, which M. Damour previously called Hydrophosphate. Before the blow-pipe it becomes white without fusing; the lustre is the fat adamantine, and the colour white or pale yellow: it scratches fluorine and is scratched by a steel point. The irregular and rounded fragments have a double cleavage leading to a rectangular or slightly oblique prism. One incomplete crystal showed a pyramid with four faces, two large

As regards shape the rule is that the smaller stones are the most regular. The larger specimens seem to have no constant form or crystallisation; they are round, flat, or elongated, and generally truncated abruptly at one end, as if a piece were wanting. The facets, which when cut appear flat and even, are, in the natural stone, concave, convex, or rounded: hence the Abbé Haiüy observed that the component molecules may be regular tetrahedra. Wallerius (quoted by M. Caire) assigns to the diamond three shapes, the octahedron, the plane, and the cube.* The normal form of the diamond, here as elsewhere, is the regular

and clean with an angle of incidence at the summit, amounting to $96^{\circ} 35'$; the two others, narrow and mirrory (miroitantes), had the angle of $98^{\circ} 20'$, whilst that of the neighbouring facets was $124^{\circ} 23' 30''$.

Phosphate of titaniferous yttria, previously termed silicate of yttria, silica having been confounded with zirconium. Density, 4.39: it feebly scratches glass; it is opaque and of cinnamon brown. The rounded grains are pierced with surface holes; it is also in square-based octahedrons, with facets like those of zircon. Boiling sulphuric acid decomposes it, leaving a white residuum. This substance is found in the auriferous sands of Georgia and North Carolina.

Diaspore, or hydrate of alumina. Density, 3.464; composed of bright crystalline blades of greyish white, resembling certain felspars. The composition is alumina, ferric acid, and water; when this is disengaged by the blow-pipe, it becomes opaque and milky white.

5. Rutile, in small rolled grains or quadrangular prisms, with striæ along the major axis, ending in a four-sided pyramid with modifications.

Brookite, differing from rutile in having the crystal type. It is entirely composed of titanic iron. The only specimen examined was a flat prism striated along the major axis and ending in the dihedron, like the formations found in Wales.

6. Anatase (titane). Density, 4.06; bright, octahedrous, transparent or semi-transparent, and distinguished

from the diamond by inferior hardness and reactions before the blow-pipe. It becomes opaque, brown and reddish after an epigene, which converts it wholly or partially to rutile. These transformed crystals are hollow, and composed of a multitude of needles which cross in all directions.

Hydrated titanic acid; of this substance no quantitative analysis was made. The whitish yellow concretionary matter crepitates strongly, and disengages water in a glass tube; and with salt of sulphur it gives reactions of titanic acid.

Tantalate. Density, 7.88; it is a black amorphous substance, which scratches glass.

Baierine, or Columbite (Niobate of iron); in flat striated and often regular crystals; the dust is reddish brown.

7. Iron, titaniferous. Density, 4.82. Formula, $3 \text{ Fe O} + 8 (\text{Ti O}^3, \text{Ta O}^3)$. It scratches glass; the fracture has a semi-metallic lustre, and the dust dark olive-green. The black grains are almost all water-rolled; a few crystals show rhomboidal oblique prisms of 123° .

8. Iron, oxydulated (Esmeril.)

9. Iron, oligist (rhombohedral, six-faced prisms).

10. Iron, hydroxydated.

Iron, yellow with sulphur.

Tin, oxide of.

Mercury, with sulphur; heated in a glass tube it gives a black sublimate.

11. Gold, free.

* Mr. Emmanuel (p. 49) says, "The Indian diamond is generally found in octahedral, the Brazilian in dodecahedral crystals."

octahedron (*Adamas octahedrus turbinatus* of Wallerius), composed of two four-sided and equilateral pyramids, springing from a common base. This is called the *Diamante de pião*, and it loses much in cutting. With this primary are found the modified forms, the hexahedron or cube, the dodecahedron (twelve rhombic faces), the pyramidal hexagon (tetrakis-hexahedron of twenty-four faces), and others. When the table and the culet of the fundamental system are worn down, the octahedron becomes a decahedron; the abrasion of two other points or angles (*quinas*) makes it a dodecahedron, a geometrically allied form, but approaching the spheroidal, and when two other edges at the girdle or base of the double pyramid disappear, it will number fourteen facets. These rounded stones (*tesselladas* or *boleadas*, *Adamas hexahedrus tabellatus* of Wallerius) are locally known as the *primeira formula*, and they are preferred by the trade, as they lose least by lapidation. There are all manner of derivations from the normal octahedron and dodecahedron, as the flat and triangular hemi-hedral, or half-sided diamans *hemiodres maclés*, the effect of secondary cleavage, called *diamantes em forma de chapéo* (hat-shaped); these find no favour. The tetrahedrons (four-sided) are pyramidal, little valued when the vertices are acute. There are also *diamantes rolados* (water-rolled stones, *reboludos*, M. Jay), which lose all their "pointés naïves;" these are held, when round and oval, to be a good form. They may, when elongated, explain Pliny's "two cones united at the base;" they are often covered with opaque crust, and rugged like ground glass; in this state they are not to be distinguished, except by their power of scratching softer substances, from the *Pinga d'agua*. Some of the latter, on the other hand, especially when of pure opaque quartzum nobile, so much resemble the gem in its "brut" or rough state, that many an inexperienced man has lost his time and his money.

The form of the diamond greatly influences the price, and thus it is that the merchant makes his profit. He pays for size, weight, and water; he gains by the shape. Purchasers on a large scale have boxes of metal plates pierced with holes, and acting as sieves (*crivos*). Those shown to me were in sets of nineteen, and bore upon them the mark of Linderman and Co., Amsterdam.

The diamond greatly varies in colour. Those mostly prized

are nitid as silver plates, clear as dew-drops, lively and showing the true diamantine lustre. All that are deeply tinted with oxide are called "fancy" or coloured stones. A light yellow is very common, and detracts from the value; the decidedly yellow, the amber-coloured, and the brown are worse. The rose-tinted are rare and much admired, the red are seldom seen. At Diamantina I was shown a fine green specimen, but the price was enormous.* The black or rather steel-coloured diamond being very rare, and rather curious than beautiful, is valued by museums; as the shape is often a good double pyramid, it should be mounted uncut.† The dead-white is not prized, and the same may be said of all "false colours," especially the milky and undetermined tints. The violet is still, I believe, unknown. I heard of blue diamonds, and many of those brought from Caéthé-Mirim are coloured superficially with a greenish-blue coating. This and the various oxides of iron must be removed by burning at a loss of about one per cent.‡ The "Duro" stones are distinguished by a light green colour, crusting sometimes thickly outside, but they cut white. Tavernier learned in India that the colour of the diamond follows that of the soil in which it is dug; red if it be ruddy, dark when the ground is damp and marshy, and so forth. This has been copied into our popular books.

To discover the flaws so frequent in diamonds, the purchaser has several simple contrivances, such as to breathe upon the

* Mr. Emmanuel relates a case of £300 having lately been paid for a diamond of vivid green colour, weighing $4\frac{3}{4}$ grains; had it been of the normal colour the value would have been £22. "Until lately," says Tavernier, "the people of Golconda made no difficulty in buying diamonds, externally of green colour, because when cut they appear white and of a very fine water."

† "One (diamond) was jet black, a colour that not unfrequently occurs." Thus says Mr. Gardner (chapt. 13), speaking of the "Serro" formation. I have only seen one in the Brazil, and that was brought from Rio Verde of São Paulo by my friend Dr. Augusto Teixeira Coimbra. It came to a bad end: he dropped it from his waistcoat pocket, and it was swallowed by a fowl. In rich and new districts the crops of all poultry when killed are carefully examined, and are often found to contain diamonds—another proof, if wanted, that the gem is not poisonous. Possibly this

may explain the fable believed by Marco Polo in the middle of the thirteenth century—"Such as search for diamonds watch the eagles' nests, and when they leave them, pick up such little stones, and search likewise for diamonds among the eagles' dung." Hence too "El Sindibad of the Sea" (Sindbad the Sailor), whose adventures are a curious mixture of fact distorted to fable.

‡ At the Chapada of Bahia the gems are placed with saltpetre in a crucible which is closed and kept over the fire, usually for about a quarter of an hour: this, however, is a "kittle" point. When sufficiently roasted to have lost the oxide of iron or the earth colour, the stones are thrown into cold water, and of course they are found to have lost a little weight. Heating the diamond and then throwing it into cold water was a Hindu test of soundness and freedom from flaws. These crusted stones, according to John Mawe, generally cut well.

stone, when defects and deficiencies of colour appear; or to place it in the palm of the hand, and to look through it towards the light, turning it in all directions.* The Jaça (in French Givre, or Gerçure) is a shallow line or speck, often of a dark colour, such as is seen in crystallized quartz; it is also a semi-opaque imperfection, which we call "milk," or "salt." The Natura (glace) is a want of continuity, or a void where the planes meet; the Racha is a fissure, or vein; and the Falha is a serious fracture, where two flaws join as if cemented together. In cutting these flaws they open out, and the diamond is split (estalado). The "ponto" is a strange body which has entered into the crystallization. Grains of sand have been observed in the diamond by many writers. I heard of a stone which contained a spangle of gold, and the same peculiarity has before been noticed.† This formation shows the comparative date of the stone, whose crystallizations of carbon, or protoxide of carbon, must have arranged themselves round the metal; and favours their opinion who believe with Brewster, that the diamond, like coal, is originally vegetable matter which has passed through Nature's crucible. A stone was lately found at Bagagem, with a loose piece nailed (cravado) as it were into the body of the gem; a similar "implantation of crystal" was suspected in that celebrated stone the "Estrella do Sul." The flawed diamond generally is called "fundo." Possibly many of these defects may be removed, and tradition dimly records that the Comte de Saint Germain, and others who have displayed immense wealth, had mastered the art.

The diamond-merchant in the Brazil still cleaves to the old system of money-weights, introduced by the Portuguese in the

* The Hindus tried the goodness of the diamond by cutting one with another, and if the powder was grey or ash-coloured, it was held sufficient test, "for all other precious stones, except the diamond, afford a white powder."—(A Description of the Coasts of Malabar and Coromandel, by Philip Baldæus, 1670.) They also examined them by night, and judged of the water and clearness by holding them between the fingers and looking through them at a large-wicked lamp placed in a wall-niche.

† "Nous y avons constaté des paillettes d'or," says M. Charles Barbot (Traité Complet des Pierres Précieuses). He calls

the flaws caused by metallic molecules, "crapauds." M. Damour, speaking of "boart," remarks, "Des paillettes d'or sont quelquefois implantées dans les cavités de certains morceaux de ces diamants." Sir J. Herschel (Phys. Geog. 291) quotes M. Harting, who in 1854 "describes a diamond from Bahia, including in its substance differently formed crystalline filaments of iron pyrites—a fact unique in its kind, and, taken in conjunction with the affinities of iron and carbon at high temperatures, likely to throw some light on the very obscure subject of the ultimate origin of this gem."

days of colonial ignorance. The Brazil has, like ourselves, an especial diamond weight; * but practically, and amongst miners, one hears of nothing but "grain" and "oitava." Quilate, or carat, † is not popular. Thus, in selling "fancy" or coloured stones, such as the blue, green, rose, or yellow-coloured, the old French lapidaries said, for instance, "eighty grains," not "twenty carats."

The following is a complete list of weights:—

Dezreis	= 1 grain (0·892 gr. Troy). This is the lowest of all weights: below this all becomes "fazenda fina," or diamond dust.
Vintem	= 2 grains (2·25 Portuguese) = 20 reis = $\frac{1}{2}$ a carat. The Vintem (plural Vintens, not Vinteis as St. Hilaire writes) is the unity of measure.
Meia-pataca	= 16 grains = 160 reis = 8 vintens.
Meia oitava	= 32 grains = 320 reis = 16 vintens.
Cruzado	= 45 grains = 400 reis (an old weight).
Sello	= 480 reis (quite obsolete).
Oitava	= 64 grains ‡ (72 grs. Portuguese) = 640 reis = 17·44 carats = 32 vintens = 16 carats.

Above four vintens, the diamond is considered large. Many miners have dug all their lives without finding a stone that exceeds twenty vintens. The most useful size is probably six vintens or three carats. The smaller stones are known in the trade as "pedra de dedo," stone of the finger, because they can be raised by pressing the tip upon them. The "cuberta" is when the lot consists of the larger gems; *e.g.*, "Partida (parcel) de diamantes que tem cuberta."

* The Brazilian measures (found in books) are—

	Lisbon lb.	Brazilian Custom-house lb.
	233·81 grammes.	= 458·92 grammes.
4 grains = 1 quilate (carat)	= 0·203	= 0·199
6 quilates = 1 escrupulo (scruple)	= 1·218	= 1·195
Our diamond scale is—		
16 parts = 1 grain = 0·8 grains Troy.		
4 grains = 1 carat = 3·2		
151·50 carats = 1 ounce Troy (8 oitavas, or 256 vintens).		
16 ounces = 1 pound.		

† The word carat is derived from the Arabic **قيراط** (Kíráṭ), through the Greek **κεράτιον**. It is the small, red, black-tipped bean of the *Abrus precatorius*, a tree probably indigenous to Hindostan, but which has migrated to Eastern Africa, where it grows wild. Mr. Emmanuel (p. 55) says, "The origin of the carat weight is

from the Arabic word 'Kuara,' the name of the seed of a pod-bearing plant (?) growing on the Gold Coast of Africa" (?). The "Kuara" of Bruce grew upon a region adjoining the Red Sea. The Hindu equivalent is the Rati (Ruttee), which Tavernier makes = $\frac{7}{8}$ ths of the carat = $3\frac{1}{2}$ grains.

‡ Some make the oitava = 60 grains English.

Of late years, the price of diamonds all the world over has prodigiously increased. In 1750-4, when David Jeffries wrote, a perfectly white and spread brilliant of one carat was worth £8; it now fetches from £17 to £18.* The reason is easily found. The influx of gold has raised the price of stones. The market has greatly extended; † in the United States, for instance, these gems are eagerly sought by those who have made money. And lastly, in unsettled countries, as the Orient has long proved, and wherever political troubles threaten, the diamond is used "en cas," or "en tout cas;" its extreme portability—the fact that its currency is nearly at par all the world over—and the difficulty of destroying it, raise it to the category of a coin of the highest value. ‡ In the Brazil, as in the Atlantic cities of the United States, where every one that can afford them, even hotel waiters and nigger minstrels, wear diamonds in rings and shirt fronts, demand has produced the same result, which is, moreover, exaggerated by the want of slave hands, and by the exhaustion of the superficial deposits. Thirteen years ago the oitava sold for 320\$000; now it fetches from 800\$000 to 1:000\$000, nearly three times its former value.§ In 1848, during the European convulsion, the price of brilliants at Bahia was reduced to fifty per cent.; but the market lost no time in recovering itself. || Castelnau (ii. 345) predicts that at the end of the present century the diamond will be worth only twenty per

* A "specimen stone" will rise to £20 or £21.

† "Amid the sumptuous articles which distinguish the Russian nobility, none, perhaps, is more calculated to strike a foreigner than the profusion of diamonds," says Coxe, writing in 1802. California, after 1848, developed the demand for diamonds in the United States. During the ten years following 1849 the various custom-houses registered a rise from an annual average of \$100,000 to about \$1,000,000. The duty was kept as low as 4 per cent. to discourage smuggling; but it was paid, they calculated, by something less than one-sixth of the importation. The stones are mostly small, weighing under the half carat, and jewellers ask 25 per cent. more than in Paris. A good article on "Diamonds and other Gems" (Harper's New Monthly, February, 1866) declares "it is doubtful whether there is any diamond in the United States of over twelve carats in weight." It states that a marked advance in price took place between 1863 and 1864, when gold

rose above 200. Good diamonds of three to four carats then sold for \$3500 to \$4000. Finally, it assures us that "ninety-nine out of every hundred diamonds sold in the United States are what are called brilliants," as opposed to the rose, the table, and the brilliolette.

‡ Thus only can we explain the fact that many noble but reduced families have sent their diamonds from Hindostan, the very home of the diamond, to Europe, and have brought them back because they could find a better market in the older country. On the other hand, the general style of East Indian cutting, making the gem lustreless and glassy from want of depth, injures it in public esteem. I have seen a fine stone placed like a bit of crystal over a portrait, and even thus it was valued at £1000.

§ In 1867-8 the fall of the milreis has produced other complications in the diamond trade of the Brazil. At the present moment (July 28, 1868) the oitava may average 1:000\$000 at Rio de Janeiro.

|| During the first French Revolution,

cent. of its value in 1800. I venture to say that, unless the stone can be manufactured, the reverse will approach nearer to the truth.

In producing the diamond, Nature preserves her regular proportions; the small are comparatively numerous, and the larger stones are progressively rarer. In rough diamonds, the ratio of value more than doubles with the weight. Thus, supposing a stone of one vintem to be worth 18\$ 000 to 20\$ 000; and one of 16 vintens will fetch 400\$ 000 to 500\$ 000 when the oitava is at 1:000\$ 000. At Bahia the price is thus ascertained. Assuming, for instance, the unworked stone to be worth £2 per carat, the worth of a heavier diamond is known by doubling the square of the weight (*e. g.*, 2 carats $\times 2 = 4 \times 2 = \text{£}8$.) For worked stones, double the weight, square it, and multiply by 2; for instance, 2 carats $\times 2 = 4 \times 4 = 16 \times 2 = \text{£}32$.

Lieut.-Colonel Brant gave me the following list of prices in brute stones, showing that the value at Diamantina differs little from that of England. Diamonds, I should remark, are divided for facility of pricing into first, second, and third waters.

Grain diamonds* 12 to 18 per carat = 75 shillings.			
" 6 — 9 "	= 77 shillings.		1st water.
For single Stones.		Paris, 1863.	Paris, 1866.
1 to 5 grains	= 83 shillings.	96 francs.	110 francs.
6— 7 "	= 107 "	125 "	140 "
8— 9 "	= 120 "	145 "	160 "
10—11 "	= 148 "		
12—13 "	= 160 "	156 "	180 "
14—15 "	= 185 "	175 "	200 "
16—17 "	= 195 "	190 "	220 "
18—19 "	= 210 "	205 "	235 "
20 grains	= 220 "	250 "	290 "
24 grains	= 280 "	285 "	325 "
8 carats †		2500 "	2750 "
10 "		4650 "	5100 "
12 "		5650 "	6200 "
16 "		7800 "	8000 "
20 "		12,500 "	" "

panic and a want of demand sunk the value of the gem 25 per cent. in the shortest time, but the assignats assisted it to re-

cover. In 1848, "portable property" was in requisition all over Continental Europe, and the price of the diamond rose greatly.

* The Parisian table, March, 1853, gives—

First water, 25 to 30 to the carat, per carat,	72 francs.
Do. 18 "	78 "
First water (defective) and 2nd water	60 "
Third do. "	45 "
Eight stones, per carat "	90 "

The "Mêlés" in Paris are stones that weigh less than half a carat.

† Above five carats the price can hardly be fixed; it depends upon the demand, the

The curious substance called by the English "boart"* and "graphite,"† by the French "boort" and "diamant concretionné," that is to say having no cleavage, and by the Brazilians "carbonato," was formerly valueless. In 1849 it became worth from one to two francs per carat, and now it fetches 56\$000 per oitava. It is supposed to be the connecting link between carbon and diamond; its hardness is that of the true gem, and its specific gravity ranges from 3·012 to 3·600. The granular amorphous mass appears under the microscope distinctly crystalline, in fact an aggregate of granules or lamellas of diamond analogous to a grit of quartzose sand. In some specimens are cellular cavities like pumice, empty or full of sand, and geodes lined with small regular crystals of colourless diamond. It is black and lustreless, and when burnt it leaves a residue of clay and other substances. This "diamond-carbon" accompanies the diamond in sandstone and in cascaltho; it appears in angular and rounded galets; the irregular lumps being often as large as a walnut. Castelnau speaks of a piece weighing more than a pound. I have heard of 2:500\$000 (£250) being paid for a single fragment. When "boart" is of large size it is generally broken to find if it be full or hollow. It is known by the great weight, by its diamond-like coldness in the hand, by the sharp peculiar sound when bits are scratched and rubbed together. The miners sometimes steep it in vinegar, as we do lard in water, to augment the weight, and it so resembles a piece of common magnetic or pyritic iron ore that without great care the best judges are

circumstances of buyer and seller, and so forth. The larger stones often remain on hand many years before they find a purchaser. I have heard of a Brazilian gentleman who expended nearly all his property in buying a "great bargain," in the shape of a diamond, of which he has never been able to dispose. The larger stones are always sold singly. Tavernier gives the following rule for estimating their value :—

15 carats (perfect stone)	15 carats (imperfect stone)
15	15
—	—
225	225
150 (value of a single carat)	80 (value of the single carat)

33,750 livres.

* Wonderful to relate, the diamond merchants of Bahia could not agree upon the meaning of "boart," which books apply as in the text. One of the oldest and most experienced insisted that it was the cheapest and worst kind of perfectly crystallised diamond, worn by attrition into spherical globules, like shot grains. This kind is

18,000 livres.

mostly unfit to be cut, and when crushed the dust is used for polishing gems and for engraving on hard stones.

† Graphite is usually applied to the pure debitumenised carbon found in the Laurentian, and associated with anthracite in the Cambrian systems. Its vegetable origin is not thoroughly established.

deceived.* It is pounded and used principally in diamond cutting. Drills pointed with this mineral have, I am told, been employed with great success in driving tunnels through hard rock.

Of this little known substance three kinds are distinguished by the trade. The worst is the "Carbonato;" a finer kind with better formed crystals is the "Torre," which fetches 60\$000 per oitava; the best occurs in small rounded balls of shining metallic appearance, and is therefore called "Balas," this may rise to 80\$000 per oitava.† Some Chapadista miners have not yet learned to sort the varieties.

The Brazilian diggings have produced some large and valuable gems, which have all been sent out of the country.

The Braganza diamond was worn by D. João VI., who had a passion for precious stones, and possessed about £3,000,000 in value. Now amongst the crown jewels of Portugal, it was extracted in 1741 from the mine of Caéthé Mirim.‡ Authors differ touching its weight,§ and no drawing of it has, I believe, been published; it is supposed to be larger than a hen's egg, and it has long laboured under the suspicion of being a fine white topaz, a stone which in the Brazil, as elsewhere,|| often counterfeits the diamond.

* The boart or carbonato, however, has no attractive power. It is tried by striking it between two copper coins, and if it breaks or does not dint the metal, it is held valueless.

† Dr. Dayrell gave me a specimen of "boart" from Sincorá. It much resembled pyritiferous iron-sand. The substance is found in pieces varying from one grain to half an oitava. I have heard it called "bolo redondo," and was told that the colour is sometimes of an opaque white.

‡ M. Barbot specifies the place as the little river "Malho Verde," in the vicinity of "Cay-de-Mérin."

§ John Mawe and the Abbé Reynal make the weight 1680 carats ($12\frac{1}{2}$ French ounces). Romé de l'Isle, who estimated its value at 7 milliards 500 million francs, gives 11 ozs. 3 gros. and 24 grains of gold weight. M. Ferry says 1730 carats, estimating the Brazilian carat at 0.006 less than the European. Mr. Emmanuel gives it 1880 carats in p. 78, and 1680 in p. 128, the former being probably a misprint.

|| Mr. St. John (Forests of the Far East, vol. i. 48) mentions a noble in Brunei who for £1000 offered a diamond about the size of a pullet's egg, which proved to be a

pinkish topaz.

In reading these two pleasant and instructive volumes I could not but regret that the author had not given us an account of the celebrated diamantation of Borneo. In old authors we find that the sands of the "Succadan" River produced fine stones of white and lively water, but that the Queens of Borneo would not allow strangers to export them. We remember, too, that in Borneo was found, in 1760, the largest diamond known. The weight was 367 carats = 1130 grains. It caused a war of nearly thirty years' duration, and it remained with the original possessor, the Rajah of Mattam. The island, with its core of granite and syenite which protrude in the vast mountain mass known as Kina Balu, the "Chinese Widow," through the secondary limestones and sandstones, much resembles the Brazil. We read also of the pot holes washed by sand-water, the gravels, and the rocky streams which characterise a diamantine country. There are curious resemblances in minor points. For instance, the people of the Sulus Islands keep their small stores of seed-pearls in hollow bamboos. These are the "Pequás," so well known to the Brazilian mine-owner.

The *Abaété** brilliant was found in 1791, and the circumstances of the discovery are related by John Mawe, M. F. Denis and others. Three men convicted of capital offences, Antonio da Sousa, José Felis Gomes, and Thomas da Sousa, when exiled to the far west of Minas, and forbidden under pain of death to enter a city, wandered about for some six years, braving cannibals and wild beasts, in search of treasure. Whilst washing for gold in the *Abaété* River, which was then exceptionally dry, they hit upon this diamond, weighing nearly an ounce (576 grains = 144 carats).† They trusted to a priest, who, despite the severe laws against diamond washers, led them to Villa Rica and submitted the stone to the Governor of Minas, whose doubts were dissipated by a special commission. The priest obtained several privileges and the malefactors their pardon, no other reward being mentioned. A detachment was at once sent to the *Abaété* River, which proved itself rich, but did not offer a second similar prize.‡ D. João VI. used to wear this stone on great occasions attached to a collar.

The “*Estrella do Sul*” brilliant was found in July, 1853, at Bagagem of Minas Geraes by a negress.§ In the rough state it weighed 254½ carats. The owner parted with it for 30 contos (£3,000); at the Bank of Rio de Janeiro it was presently deposited for 300 to 305 contos, when it was worth £2,000,000 to £3,000,000. After being cut by the proprietors, Messrs. Coster of Amsterdam, it was reduced to 125 carats, and now it belongs, I believe, to the Pacha of Egypt. Though not perfectly pure and white, its “fire” renders it one of the finest gems extant.||

The Chapada of Bahia also produced a stone weighing 76½

* M. Buri (427) calls the *Abaété* diamond “*O Regente*.”

† In some books the weight is given at 138½ carats; in others it is made 213.

‡ This stream has already been mentioned. The diamond was described by John Mawe as octahedral in shape, weighing seven-eighths of an ounce Troy, and perhaps the largest in the world. It passed through the hands of the Viceroy, and was sent in a frigate to the Prince Regent.

§ A story far too long to tell here belongs to the *Estrella do Sul*, which appeared at our Great Exhibition in 1851. Exceptionally, for few diamonds with names can make such boast, it has caused no blood-

shed; even the finder was not murdered—only ruined, and died broken-hearted. Of the score or two of persons who made fortunes by the discovery, Casimiro (de Tal), whose negress (not a negro, as the writer in “*Harper’s*” says) brought it to him in order to obtain her freedom, was the only one disappointed.

|| M. S. Dulot (France et Brésil, Paris, 1857), p. 20, seems to confound the “*Star of the South*,” which was found in 1853, with the “*Braganza*,” dating from 1741. Mr. Emmanuel (p. 61) rightly makes the *Estrella do Sul* the largest found in “the Brazils.”

carats, and when cut into a drop-shaped brilliant it proved to possess extraordinary play and lustre. It was bought by Mr. Arthur Lyon, of Bahia, for 30 contos, and it is now, I am told, in the possession of Mr. E. T. Dresden.

Briefly to conclude. As yet the Diamantine formations of the Brazil have been barely scratched, and the works have been compared with those of beavers. The rivers have not been turned, the deep pools (poços or poçoês) above and below the rapids, where the great deposits must collect, have not been explored, even with the diving helmet; the dry method of extraction, long ago known in Hindostan, is still here unknown. All is conducted in the venerable old style of the last century, and the fiend Routine is here more deadly than Red Tape in England. The next generation will work with thousands of arms directed by men whose experience in mechanics and hydraulics will enable them to economize labour; and it is to be hoped that the virgin gem-bearing waters will be washed up-stream. This was the sensible provision of the old Diamantine Regulation. Unfortunately it came too late, when the channels had been choked with rubbish which was hardly worth removing.

CHAPTER XI.

FROM BOM SUCESSO TO THE CORÔA DO GALLO.

THE SACO OR PORTO DOS BURRINHOS.—INDEPENDENCE DAY.—THE “CACHOEIRA DO PICÃO.”—THE LAPA DOS URUBÚS.—THE BURITY PALM.—SILENT BIRDS.

“Cette partie si importante de l'économie publique, en un mot demeure encore livrée à un état d'abandon que le gouvernement ne peut trop s'empreser de faire cesser.”—(*M. Claude Deschamps, of the French Rivers in 1834.*)

“It is presumed the Brazil will not attempt to dispute the now well-settled doctrine, that no nation holding the mouth of a river has a right to bar the way to market of a nation holding (land?) higher up, or to prevent that nation's trade and intercourse with whom she will, by a great highway common to both”

(*Lieut. Herndon, p. 366.*)

SATURDAY, *September 7, 1867.*—My letters were soon written, the trooper Miguel and his mules were dismissed with good characters, and at 9.30 A.M., after embracing our kind host, Dr. Alexandre, we pushed out of the creek “Bom Successo.”

“O Menino,” the new broom, swept, as happens for a short time, uncommonly clean, naming every little break of water or hole in the bank.* The rocks, sandstone abounding in iron and laminated blue limestone, were all in confusion. The strike was to the east, the north-east, the south-east, the west, the north-west and the north, and sometimes within ten yards the strata were anticlinal, nearly vertical, and almost horizontal. There were slabs of clay, with perpendicular fracture dipping towards the river, and here and there “Cánga” and “Cascalho.”

After a few unimportant features,† we left to starboard the

* *E.g.* the Corôa do Nenné, so called after the nickname of a man with a crippled hand, and the Corôa do Saco, both with the main channel to the left. Then the Corôa do Poço do Gordiano and the Corôa do Cedro, with the Ribeirão do Cedro falling into the left bank; these have the thalweg on the right.

† Córrego do Bom Successo Pequeno on the right bank, one league by water and one mile by land from the Fazenda. Then the Corôa do Saco do Cedro, grassy and tree-grown, with a break above and below it. On the right bank the Sitio of Antonio Alves, with traces of cultivation.

Larangeiras stream and estate, belonging to Colonel Domingos. Opposite it is the Barro do Maquiné Grande, a little "fishy" creek of clear water, which has a water-way of five leagues for canoes, forming a Corôa (do Saco do Maquiné Grande), with a clear way to the right.* In the Maquiné Fazenda there is, they say, a cavern which gave fifteen days' work to Dr. Lund, and the savant found there a "pia" or baptismal font of stalactite, which would have commanded 400*l.* in Europe. Shortly after noon we descended this day's first rapid, the Cachoeira da Capivara, which has two channels, with a sandbank in the centre. The left is the deep water-way, but rafts come to grief by dashing against the bank where the pole cannot touch bottom. We therefore floated down stern foremost, threw out a cord and hugged the Corôa. The air was dense with bush-burnings, here producing an "Indian spring," which corresponds with the "Indian summer" in the north: mostly Brazilians complain of the smoke, and declare that it gives them difficulty of breathing. Nothing could be more picturesque than the long lines of vapour like swathes or veils, whose undulations overlay the hill-tops, and gradually dispersed in air.†

At 4 P.M. we passed the Rio de Santo Antonio, a pleasant little stream which admits for two leagues tolerable-sized canoes, whilst the small dug-outs ascend it about double that distance. It leads to (Santo Antonio de) Curvello, a town so called after an ecclesiastical colonist; built upon the Campo, and the last in this region, it is supposed to demarcate the "Sertão," ‡ or Far West. But the inhabitants do not readily own to the soft impeachment; the traveller is always approaching the Sertão, and yet hears that it is still some days off. He remembers the lands of the tailed nyam-nyams, which ever fly before the explorer, or, humbler comparison, the fens of certain English counties which, according

* The next holm, Corôa do Palo, which sent us to the left, is not mentioned by M. Liais.

† After the Palo are the Porteira, so named from a creek, and the Corôa das Mamoneiras, with the thalweg to the left; neither of them is mentioned by M. Liais. Then comes the Córrego das Canoas (Ribeirão das Canoas, Liais), exposing on the right bank a mass of auriferous pudding-stone, and beyond it the boulders dip 10° to 30°. Here the Corôa das Canoas blocks up the right channel. On the left is a

perpendicular bank of brown clay six feet deep, with red-leaved Copahyba trees growing from it. There is little to notice in the Porto and Córrego da Anta or in the Porto do Muricé, so called from a small edible yellow berry.

‡ Southey writes the word after the old fashion, "Sertam," and declares (ii. 565) that he does not know its origin. It is nothing but a contraction of Desertão, a large wild, and it is much used in Africa as well as South America.

to the pallid, ague-stricken, web-footed informant, are not honoured by being his dwelling-place.

After passing broken water at the Corôa de Santo Antonio and the Corôa and Corrida das Lages, at 5 P.M. we fixed upon our "dormida." It was a sandbank in a bay called Saco or Porto dos Burrinhos, of the Little Donkeys, and opposite it, on the right, lay Boa Vista, still the property of Colonel Domingos. The moon, that traveller's friend, a companion to the solitary man, like the blazing hearth of Northern climates, rose behind the filmy tree-tops and made us hail the gentle light. We have not the same feeling for the stars, or even the planets, though Jupiter and Venus give more light than does the Crescent in England; they are too distant, too far above us, whilst the Moon is of the earth, earthy, a member of our body physical, the complement of our atom. We did not forget a health to this, the Independence Day of the Brazil. Within the life of a middle-aged man she has risen from colonyhood to the puberty of a mighty Empire, and history records few instances of such rapid and regular progress. This "notanda dies" also opens to the ships of all nations, the Amazons and the Rio de São Francisco; a measure taken by Liberals, but, curious to say, one of the most liberal that any nation can record. In spirit we join with the rejoicings which are taking place on the lower waters of the liberated streams.

September 8.—Pushing off at 6:30 A.M., we passed the Porto do Curvello with a ranch on the left, denoting the high road to Diamantina. The rapid and shallow, known as Saco da Palha, sent us first to the left and then to the right. Again the rocks are quaquaversal, with dip varying from horizontal to vertical. The banks at the beginning of the day were low, but presently they became high and bold; forested hills on the right formed a hollow square. The first rapid was the Cachoeira do Landim,* with its "crown" and shallow; a line of stone, fractured in the centre, stretches nearly across stream, and gives passage to the left. Beyond this point are sundry minor obstructions,† not named

* Said to be the name of a fish and a tree. M. Liais writes Landin.

† The Corôa do Jatahy, but little above water, and with a break to the right, shows where Col. Domingos' property ends. Then by the right of the low banks the Corôas do Garrote and do Páu Dourado; by the

left of a third, where two sandbanks narrow the bed to fifty yards, and descend the Saco da Varginha or Varzinha. Another little nameless break, the course turning from east to north, and backed by a hill-line wooded to its flat top, and apparently crossing the stream.

by M. Liais. He proposes, however, extensive "ameliorations" of the stream, "tunage," "draguage," canalizing to suppress the useless "chenal," and "attacking" the bank.

After the Varginha, a low sandbank which gave us passage to the left, the Porte do Silverio (P. N.) sent us to the right. Here a reef, at this season very shallow, nearly crosses the stream, and "Marumbés" or iron-coated stone, began to glisten on the bank. Next came the Saco and Cachoeira de Jequitibá, with fields and houses on the left. We landed on the Corôa and inspected this neat mill-dam, a broken ridge of ferruginous rock—possibly derived from the Serras—extending right across from north-north-west to south-south-east. Canoes can creep along the left side, but our ark gallantly plunged down the middle, which a little hammering would easily open. We noticed the magnificent sugar-cane, which exceeds in size that of Bom Sucesso.

More small troubles* led us to the not very important Cachoeira da Manga. The word denotes a narrow lane, and a square of rough rails leading to the water edge. Cattle are driven in, and the pressure of those behind compels the foremost to set the example of swimming the stream. A clearing ran up the neat hill-slope on the right bank, horses and cows basked on the sands, and men, squatting like Africans under shady trees, shouted warnings of the dreaded Picão, and promised to pilot us if we would wait a day. We expressed our gratitude chaffingly, modifying the puppy pie and the lady in mourning.

Steering to the left of the Tronqueira break, and describing a little circle to the right, at 3 P.M. we entered the Saco do Picão. Here the stream, swinging to the left bank, works round from west to north-east and east. At first a little break extending across nearly home, and well provided with snags, made us present rear and hug the right; the bank was hard and soft argile, quartz-veined, and supporting Cánga, whose strike was east and dip 30° to 35° . Then passing to the left of an "inch" we landed on the right side to lighten the craft and to inspect the formation.

* Barra do Breginho, with a turn to the north-east; on right bank, huts and fields with snake fence opposite. The Cachoeira do Saco, a dam of ironstone, with narrow gap to left, and grassy hill in front. The

Cachoeira and Corôa dos Tachos (Taxos, M. Liais), with bad break over rock wall to the right, passage on left, but two rocks in the way.

The Picão, or Pickaxe, deserves its ill-fame; it is perhaps the worst obstruction on the Rio das Velhas.* A broad, broken band of jagged serrated teeth dams the stream, besides which rocks and sandbanks extend some two miles above and below it. The material is a very hard blue clay shale, whose laminations easily split apart: it has a metallic ring, it does not effervesce under acids, and it hardens in, without being otherwise affected by, fire; evidently it will be valuable for building. The emerging rocks cause the waters to groan and splash, to dash and swirl by them in little rapids (Corradiças), averaging some nine feet per second. We crept under the right bank, but now drawing sixteen inches, we were soon aground, and required lifting by levers. Passing to the right of a small sandbank below, we had a good back view; the water-fall was between three and four feet, and there would be no difficulty in opening the mid-channel. At 5 P.M. we crossed to the left and nighted on a sandbank, still in the Picão Sack, opposite a hill, and a small cascade which resembled a toy.

Here we enter the land best fitted for emigrants. We are beyond the reach of the great planters who wish to sell square leagues of ground, some good, much bad, and all, of course, at the longest possible price. There are no terrenos devolutos, or Government grounds, but the small moradores ask little. Hereabouts a proprietor is ready to part with four square miles, including a fine large Córrego, for 300\$000 to 400\$000, less than I paid for my raft. The Geraes, or lands beyond the river, are still cheaper, and generally where water runs in deep channels, land may be purchased at almost a nominal price; the people have no appliances for irrigation, which the steam-engine would manage so efficiently. The views are beautiful, the climate is fine and dry, mild and genial, there is no need of the quinine bottle on the breakfast-table, as in parts of the Mississippi Valley. There are no noxious animals; and, except at certain seasons, few nuisances of mosquitos and that unpleasant family. The river bottom is some four miles broad, and when the roots are grubbed up, it will be easy to use plough or plow, whilst the yield of "corn" and cereals is at least from 50 to 100 per cent.

* M. Liais remarks of this Picão (p. 10),
 "une petite barque vide et à moitié portée
 par des hommes peut seule passer tout contre

la rive droite, et en touchant souvent un
 fond de pierres."

There is every facility for breeding stock and poultry; besides washing for gold and diamonds, limestone and saltpetre abound, whilst iron is everywhere to be dug. Water communication will soon extend from the Rio de São Francisco below, to the excellent market of Morro Velho in the upper waters. Lastly, the people are hospitable and friendly to strangers; my companion, who had a smattering of engineering, could have commanded employment at any fazenda.

Sept. 9.—The end of the Picão was a shallow break, known as the Portão; it is formed by a ledge projecting from the high right bank of red-stained limestone.* This was followed by a straight reach, with fine bottom lands, wooded hills bounding them to the left. After paddling for about two hours and a half, we descended by the stern “as Pórtelas,” the gates, and came to the rapids known as Cancélla de Cima, and Cancélla de Abaixo, the upper and lower barred gate.† These unpleasant gratings were not passed without abundant clamour and fierce addresses, beginning with “Homem de Deus.” The river is shallower than ever, we can see the water line below which it has lately shrunk, and evidently the usual rains are wanting in the upper regions. The marvellous dryness of the air continues to curl up the book covers; at sunrise the breath of the morning deadens our fingers, and incapacitates them from writing, though it ranges between 55° and 60° (F.). At noon the mercury rises to 75° , and at 1 P.M. to 85° . Presently a south wind will blow from the Serra Grande or do Espinhaço.

At 11 A.M. the reach bent from north-east to north, and we passed the mouth of the Paraúna River ‡ (Barra do Paraúna), now an old friend. The breadth of this, the most important of influents, is 90 to 105 feet, a mass of sand cumpers the left

* Further down was limestone on the right bank, striking to the north-west, and dipping 45° .

† The upper Cancélla is formed by scattered teeth of stone projecting from the banks. We hung upon a detached rock in the centre, and the poor canoe took in much water; levered her off and found passage close along right bank. Rest of run occupied by a ledge stretching from north-west to south-east; touched again and spent a total of twenty minutes before getting into deep water. Another dam from left bank gives free passage to the

right; on opposite side a Barreiro de Gado with huts, sugar-cane, and Jaboticábas. The Cancélla de Abaixo has on the left bank a grating composed of four long walls and detached rocks, the passage is along the right side, where there are two separate stones and a pair of dam lines; here also we struck, and lost twenty-five minutes.

‡ M. Gerber places the Barra da Paraúna in south lat. $18^{\circ} 50' 0''$. M. Liais in $18^{\circ} 30' 19''$, at fifty-three direct miles from Casa Branca, in $19^{\circ} 23' 45''$; and eighty-four from Sabará (in south lat. $19^{\circ} 54'$).

jaw, and elsewhere there are stiff banks of brown humus, and white and red clay. The position will make it a great central station when a railway from Rio de Janeiro shall connect with the steam navigation of the São Francisco.

At the Barra do Paraúna began new scenery. Hitherto the mountains have been like crumpled paper; now they assume a kind of regularity, and often lie parallel with the axis of the stream. On the left there is a buttressed calcareous line through which the Rio das Velhas breaks at its confluence with the Paraúna: further south the same ridge is to the right, or east, and flanks the Cipó river on the west. The Rio das Velhas widens to 200 yards; the tortuous stream becomes comparatively straight, with a general direction of north, 11° west, and the slope is greatly diminished.* A "fancy country" showed itself, the blocks of hill drew off, and the banks were gently sloping ledges, with brown drift wood at the water edge; and yellow clay and sand with rocks here and there in higher levels. Large undulating ribbons of tender green, set in sun-burnt flanks, showed the torrent-beds green-lined as those of Somali-land in the rains, and here and there the thicket contrasted with tall scattered trees, the remnants of an old forest. Cattle lay and sunned themselves upon the damp Corôas, and we heard with pleasure the voices of villagers and the barking of dogs.

At 1:30 p.m., we passed the Lapa d'Anta, a formation reminding us of Páu de Cherro. The river runs to the north-east, and its right bank is buttressed by a bold mass of limestone bluff to the west, rising sharply from the sands and clays on both sides, and forming a small bay with a graceful sweep. It is the perpendicular face of a long range, extending from south-east to north-west, and hemming in the river on the east; the feature corresponds with that before noticed. The dip is 25° , exposing only the edges towards the stream: the lower part is a hollow of wavy, blue-tinged strata, whilst the upper half is an overhanging mass of solid matter, looking as if crystallised, stained red by the rusty clay, and curtained with black tongues apparently dyed by the cinders of the burnt soil above. From the summit sloped backwards a brick-coloured hill, with leafless

* According to M. Liais, the slope between Trahiras and Paraúna is 0.4355 metre per mile. From the confluence of

the latter stream to the débouchure of the Rio das Velhas, it diminishes to 0.2735.

trees, contrasting singularly with the metallic verdure of the banks.

At 1.45 P.M. the river turned from north to west, and we passed a similar formation. Here a cave, the Poço do Surubim or do Loango,* faces south, and shows an arch of blue limestone with soffit-like edges of brick, built as if by art, with their laminations of dark chocolate embedded in a limestone resembling marble. A little below, a sandbank, projecting from the left, contracts the stream to half-size and makes it very deep. The prospect is pleasant, hill piled on hill, and changing colour from brown-red to blue as the lines recede.†

Presently we sighted the Lapa dos Urubús, a limestone bluff like its neighbours; but rising some eighty feet in height: it is crowned with green trees, and has grey vegetation above. It faces to the west, the river running north to south and the strata are horizontal, except where they had slipped down into the water. On the right bank, and in front, lay a tapering point projecting from a bushy hill, whilst the sand-ledge that banked the stream was tasselled with verdure. A single splendid Jequitibá, with a cauliflower-like head and a wealth of cool verdure, marked the spot.

About 5 P.M. we landed and walked up to the Lapa. Beyond the bank, some fifteen feet high, was a dwarf clearing (Roça), with felled trees and a field of tomatos and Quiábos, or “Quingombos,” (*Hibiscus esculentus*), mixed with the Cordão do Frade.‡ After a few paces we reached a cliff from whose crevices trees sprang and creepers hung down; here also the arches had a brick-like

* According to the people, the Loango is the male of the Surubim; others declare that the Moleque is the male of the Loango. The fish here supplies the Amazonian cod-fish, the Piruruçu (*Vastus gigas*), and the people will learn to salt and export it. It is a kind of sturgeon, scaleless, spotted and marbled, flat-muzzled and whiskered, like the “cats” (*Silurus*), which drown the negro boys fishing in the Mississippi waters, and ugly as any “devil fish.” It is often five feet long, and attains a weight of 128 lbs., yielding two kegs of oil. Several species are mentioned; for instance, the Surubim de Couro. The people declare it to be a cannibal like the pike; they net it, and the wild men shoot it with arrows. They split the body, sun-dry it, and sell it

in the Sertão. The meat is excellent, white, firm, and fat. I have never tasted a finer fresh-water fish; it has, however, the bad name of causing skin disease.

† Here occurs the Ilha Grande which blocks up the right side. Then the Corôa do Clemente with three sandbanks, one tree-grown, the others sandy. Beyond this is another large islet, which must be passed on the right.

‡ *Leonotis nepetifolia*. From Ukhete, in Eastern Intertropical Africa, I sent home a specimen of this labiad, which grows wild all over the low damp region of the seaboard. The negroes use it to narcotise fish, and probably it has been introduced into the Brazil by the old Portuguese.

appearance, and the tall organ-pipe Cactus hedged the foot. The cave faced to the south, débris of rock encumbered the entrance, and higher up was a large shield-formed slab, masking a dark gallery some three feet high, and said to extend two miles. Here was a shallow pit whence the saltpetre earth had been taken, and we found nothing within but bats and "horse-bone limestone."

Sept. 10.—The night was cold, a chilly eastern breeze coursed down from the Diamantine mountains, and the "Corrubiana" appeared from afar in fleecy dark-lined clouds. After twenty minutes' work we came to the Cachoeira das Ilhotas, an ugly place,* but easy to be opened, as the crest of the ledge is narrow. The sun waxed hot, the east wind was exceptionally cold and high, and my companions began to suffer. João Pereira was treating a bruised arm with arnica, and was compelled to "lay up;" a serious matter with a small crew. The other men had for the last two days complained of a sensation of malaise, headache and want of sleep, without any apparent reason. I resolved to begin a new system, and to halt during the greatest heats. Finding the Eliza overweighted to starboard we pulled up a plank and discovered that, in addition to the leak, the carpenter had not taken the trouble to remove his chips. In the Bight of Benin none of us would have escaped fever, and a few would have remained on, or rather in, the banks.

After the Ilhotas we attacked the three Jenipapos. No. 1 is a wooded islet defended by a dangerous snag; there are rocks in abundance and the current swings towards them. We ran down the left bank of the holm, and crossed water breaking over sunken stones; here in June, 1866, they wrecked a canoe and implements for sugar-making, en route from Sabará to Januaria.† Jenipapo No. 2, where the stream runs to the north-east, has few difficulties; there is sufficient water in the mid-stream. After this, for some three miles, we made easting, and gained nothing. Then we crossed the Redemoinho da Beija-mão, the "Whirlpool of

* Rocks extend across the stream from right to left, blocking it up in the latter direction. We went to starboard, grounding upon the dexter bank of the Coróa, above the rocks on the right, and rounded its lower end by cordelling. Then we shot through a bad break formed by a rock pier running from north to south, and made the left side to avoid two similar formations, a detached stone and a shallow. The second

islet caused us to hug its eastern side to avoid a reef on the right bank of the stream, and we ran the rapid, carefully looking out for ledges below water. This occupied half-an-hour.

† Below it is another break, stones and an islet, crossing the stream from north to south; further down, the water dances and flows over a newly formed bank; whilst, lowest of all, there is a break of ironstone.

Hand-Kissing." It is not even a Maëlström, but it may be dangerous to small craft during the floods. The third Jenipapo was a Corôa, which we skirted on the right, the rest of the waterway breaking heavily. Shortly afterwards we passed the Ilha do Hippolito* with a saw of jagged rocks that barred the right side.

At 2 P.M. we resumed work in the teeth of a strong north wind. The right bank showed a bed of quartz-conglomerate four to five feet high, and below it was the dry Córrego do Brejo with its limestone outcrop. At the Váo da Carahyba† there is a ford in the dry season, and the Saco of the same name showed a rock to starboard, not dangerous, for the channel on the left is well marked. Here we followed three sides of a square, and a cut of 1.5 mile would save six. At 5 P.M. we passed the Porto de Arêas, on whose right people were encamped. It was marked by a quaint-looking Angico Mimosa, then leafless, and exposing a smooth rhubarb-yellow bole.‡ Another hour placed us at the Saco da Manga, a sandbank 20 feet high, spangled with the Mangui Hibiscus, and supporting fine rich soil eight feet deep. Here the waters of the Rio das Velhas, probably affected by some influent, were particularly dark and foul, with the peculiar smell of the slimy African river where rain has not washed it. The pilots declared it crystal compared with the waters of the wet season, when the upper washings give it a blood-red hue. At night, however, the evil was mitigated by a strong wind from the "Range of the Spine."

Sept. 11.—The dawn when we set out was clear, but as the horizon waxed yellow, smoke columns began to rise from the water till dispersed by the light breeze which became a strong east wind. At noon the sun was fiery, and the afternoon waxed wintry, but it was a winter in Egypt. It reminded my companion of a "fall day" in Tennessee, when men begin to pick "cutt'n." About eventide clouds like smoke-puffs flitted across the sky and gathered in the north, whilst a purple haze in the west, and a misty moon betokened, said the pilot, not rain but wind.

Sweeping round a corner we saw white sand-drift and tall trees, which showed the Porto da Manga of the Rio Pardo. It drains

* M. Liais calls it "de San Hippolyto."

† Also called Caraúba, Caroba (an error), Caraíba, and Carahiba; we shall find it in quantities upon the Rio de São Francisco, where there are two species, one with pale

golden brown, the other with a smaller blossom of pleasant lilac colour.

‡ The guides named it Páu Breu—pitch tree.

the western slopes north of Diamantina. The counterslopes supply the Caéthé-Mirim to the Jequitinhonha. Canoes, after two days, reach its Serra, distant only twelve leagues from the City of Diamonds. The mouth was 140 feet broad, the main stream being 650. The first hour saw us bumping down a shallow formed by a break, and passing a jagged line of limestone slabs with a western strike, and nearly perpendicular, like half-submerged grave-stones. A little below it were limestone blocks, with a south-eastern strike. Again the surface of the land displays extreme irregularity, caused probably by the meeting of different systems of uplands which project their bands from both banks across the stream. It is one of the peculiarities of this Lower Rio das Velhas, and deserves attention.

Presently we shot at the Cachoeira do Gonçalves,* an ugly place with broken water. Shortly afterwards we struck heavily, and hung for a time upon a sunken rock in midstream, under surface all the year round, and not noted in the plan. Twenty minutes led to a similar accident. On the latter occasion, however, limestone lumps emerged from the water near the bank. These obstacles are dangerous to boats; the Cachoeira must be cut through, and the rocks should be removed. At 9:30 A.M. was crossed the mouth of the Curumatahy River, which heads north of and runs parallel with the Rio Pardo. Here the pretty stream is about 105 feet broad; its right bank is rich with tall trees, and it curves gracefully out of sight.

The Rio das Velhas again alters its aspect. For some time we had seen in front a long grey line, the Serra do Bicudo, so called from a little stream entering the left bank. Now we make a long westerly bend, compelled by the Serra do Curumatahy, a chine rising some 1500 feet above the river-bed, and at this point approaching within 300 yards of the stream. It is prolonged to the north by the Serras do Cabral, do Paulista and da Piedade, whilst opposite them on the left bank are the Serras da Palma and da Tabuá. There is a remarkable correspondence in the lines. The summits are grass-grown, and shrubbery appears in the damper hollows. Here, as elsewhere, more rain falls upon the higher

* M. Liais, Cachoeira de Gonçalo. Two separate lines of limestone on the right strike south-east, and dip 75° ; all below is rugged, with scatters of rock. We went

down on the right, shaving a slab, made for the left side, and then crossed to the east.

than upon the lower levels, but the former readily drain into the latter. Between the southern chains, which appear to be the boundaries of the old bed, is an average interval of four miles. The ranges are composed of gently swelling hills, with a surface of brown bush from which the timber has been removed, and with scattered patches and gashed lines of green, denoting water. The slabs of blue stone, probably lime, are said to form caves and saltpetre. At the base are bayous and swamps (brejos) lying below highstream level. The banks show a remarkable difference; on the right is a fertile calcareous soil, based on a ferruginous argile* used for whetstones. On the left, where sandstones and laminated clays appear, the vegetation is poor and "scraggy."

At noon we anchored for rest near a bed of conglomerate, six feet thick, shaded by a noble Jatobá salaaming to the water. The place is called the Brejo do Burity, and it bears a thin forest of monocotyledons with a dicotyledonous undergrowth. The word written by Pizarro and St. Hilaire "Burity," by Martins, Gardner and Kidder "Buriti," and by the System "Bruti," is a vulgar corruption of the Tupy "Murity." † This *Mauritia vinifera* is at once elegant and useful, but I was disappointed with it when recalling to mind the magnificent Palmyras or Fan-palms of Yoruba. The people, however, declare that near the river it is an inferior growth, attaining its full dimensions only in the high and dry Geraes lands. They could not tell me how far it extends. Most of them agreed that where the Carnahuba clothes the margins of the middle São Francisco the "Burity" grows inland. Here it flourishes isolated and in groups. I saw every size, from the little ground-fan to the tall column crowned with sphere of leafage.

According to Leblond and Codazzi, a tribe of Guaraunos or Waraons depended for life upon this palm, where they built their aërial houses, and whose larvæ are still favourite food with the "Indians" of the Orinoco. Here the leaves are woven into baskets, and the fronds are cut, rafted down, and sold for fences. The oily, reddish pulp between the fruit scales and the albuminous substance of the nut ‡ is made with sugar into a massa or lump, and carried bound in leaves to market. The people relish this "doce," although it is believed that eating the fruit

* At 9.50 A.M. we passed in the river and on the banks, ironstone, apparently rich.

† Some old travellers have "murichy."

‡ St. Hil. (III. ii. 344) says, "le tronc est rempli d'une moëlle, dont on fait une sorte de confiture." All assured me that it was from the fruit.

stains the skin yellow. The brown-yellow fibre forms strong hammocks, which last longest when the material is greased. On the Rio de São Francisco they cost from 1\$000 to 1\$500. The saccharine juice gives the most highly prized palm wine in the Brazil, where, curious to say, that of the Cocoa nut, of all the delicatest, is unknown. It is extracted, after the wasteful negro fashion, by felling the tree; holes are cut with the axe half a foot long by three inches deep, at intervals of five or six feet, and they are soon filled with the reddish liquor. As time advances a more economical system will be tried. The "Buritizal" suffers much from the large ant called *Içá* or *Yçá*.

At 2 P.M. we left the Jatobá shore, which seemed to be enjoyed by flies and other pests as well as by ourselves. We made a straight line of five miles between the parallel range, after which the narrowness of the right-hand channel drove us to the left of a Coráo. At 3.15 P.M. we passed an island wooded on the north. The west bank was strewn with very loose Cascallo, and cut by a limpid stream. Here the bed narrowed to 250 feet. A few "der-rubadas," or clearings, contained dead trees encumbering the ground, and little onion plots spoke of population. Half an hour afterwards a sandbank squeezed the left channel, and drove us down the right. Here we saw for the first time groups of limestone rocks just above water, and overgrown with the woody *Arinda*. The *Cachoeira do Riacho das Pedras* breaks in the centre and shows the same features, calcareous blocks bare of everything but shrub. Lastly we left on the right the *Corôa do Gallo*, two bars of limestone almost à fleur d'eau; and at 5.45 P.M. we anchored on the port bank, a tract of sand thinly covered with scrub.*

This day we passed over immense wealth, of which, like philosophers, we took no heed. The *Rio Pardo*, like the *Paráuna*, drains highlands rich in diamonds and gold, whilst the bed of the *Rio das Velhas* is a natural system of launders. In due time it will be thought, perhaps, advisable to turn and lay dry certain bends in this part of the stream, and there are several places where such an operation suggests itself.

For the last two nights the "Whip-poor-will" and the "Cury-

* Opposite this place the map shows a dwelling-house, "As Porteiras," but from the stream we did not sight it. *Porteira*

(originally a porteress,) here means a barred gate leading to a pasture, &c.

angú" have been silent—they who so often had broken our sleep with their complaints and responses, delivered from the thickets along and across the stream. Men are certainly not numerous enough to destroy them. Perhaps their favourite food abounds in some places, not in others, and thus they may not inhabit the banks continuously. Or again, the cold wind is, we may conjecture, uncomfortable enough to interrupt the concert.

CHAPTER XII.

FROM THE CORÔA DO GALLO TO THE ILHA GRANDE.

“CACHOEIRA DA ESCARAMUÇA” (NO. 10, AND FINAL).—THE DELIGHTFUL TEMPERATURE.—VERMIN.—ECLIPSE OF THE MOON.—THE HOWLING MONKEYS HOWL, AND OTHER SIGNS OF AN APPROACHING RAINY SEASON.—THE JACARÉ, OR BRAZILIAN CROCODILE.—GULLS, AND NOISY BIRDS.—SERPENTS.—LAST NIGHT ON THE RIO DAS VELHAS.

——— o clima doce, o campo ameno
E entre arvoredo immenso, a fertil 'herva
Na viçosa extensão do aureo terreno.

(*Caramurá*, vii. 50.)

THURSDAY, *Sept.* 12, 1867.—We had been idle yesterday. I had given an inch, and very naturally my men had taken the usual ell. We began early with the best of resolutions, doomed, however, to be disappointed. Presently slack water prepared us for a fall, called by M. Liais the “Cachoeira dos Ovos.*” Here a mass of green-clad blocks and a break sent us first to the left and then down midstream. Half an hour afterwards we reached O Desemboque—the disemboguing.† A little further down an old Morador put off from the right bank to buy twist-tobacco, which the “Menino” had bought for seven and sold for twenty coppers per yard. Yet the whole country is admirably fitted for growing the weed. He gave us a terrible account of a rapid some seven miles down stream, declaring the fall to be six feet high, and nothing would persuade him to accompany us. Probably he had never seen it.

Presently appeared on the left the opening of the Rio Lavado, or Washed River, so called from the diamond diggings in the

* The “Menino” named it “Barra das Pedras,” and an old man on the bank “Cachoeira do Ribeirão,” from a little stream on the right which we passed at 9:30 A. M.

† In Minas Geraes there is a town called Desemboque. M. Liais writes Desem-

borque and “Embórque” (p. 22), the popular pronunciation; there is, however, no such word. Here a shallow tide-rip (*mareta*) crosses the bed, the effect of rocks extending from the right bank. We descended, stern foremost, in ten minutes, and took the right of a small Corôa.

upper bed. The gap, 150 feet broad, appeared to be choked with green. We easily shot a small break garnished with three lumps of stone, and went to the left of a Corôa and its shallow. Now a reach and banks, regular and artificial dykes, backed by a fine mass of blue Serra, prepared us for the Cachoeira de Escaramuça, the tenth and last serious obstacle on the Rio das Velhas.

This rapid is formed by a broken wall extending nearly across stream from north-west to south-east. The hard clay is capped with iron, and the shapeless rocks are tilted up nearly vertically. In the centre is the main drop, about three feet high, and here the channel would easily be opened.* We went half way down the shallow thalweg, close to the eastern bank, and after six minutes we made fast near a patch of bright green "water grass," hardly sweet enough to be good forage, whilst the pilot went ahead in the tender to prospect. Under the shady trees the rush and bubble of the cool waters made pleasant music, and it was interesting to see the old man balancing himself like a rope-dancer upon his hollow log, tossed by the tide-rip.

Below the principal fall were three channels. That lying to the right of the Corôa proved too shallow. Above the sand-bar was a bad broken passage, rejected because of the rocks to leeward. Between them and the gravel-islet lay the clear way. The river was now at its lowest, and the drift timber showed that it had lately fallen two inches. The crew was obliged to clear away the rock-fragments, and the *Eliza* was led like a vicious mare down the hand-made channel. On the Corôa we found for the first time the bivalve shells of a "river mussel," † which extends all down the Rio de São Francisco, and which is valued for fish bait.

After working nearly an hour we made for the left bank, and anchored near the mouth of a small marsh drain, "S. Gonçálo das Tabocas" (of the wild bamboos). Here the men changed their dripping clothes, and guarded against the rheumatics with a dram. At 2·20 P.M. we resumed work, passed sundry Corôas, ‡ and ran under the Serra do Paulista. At 4·30 P.M. we attacked the Cacho-

* M. Liais proposes to open the right channel, but this portion would, I venture to think, soon be filled up.

† It is the No. 1 of my small collection. According to the pilots this mussel, when alive, keeps in deep water, and only shells are found in the shallows.

‡ The first was a small Corôa with a break and snags; the right bank a little below it showed heaps of black stone, in which sand, and frequently the blue calcareous matter, reappeared. The next Corôa was close to the Serra, which in the map is placed one mile too far east.

eira das Prisoês—of the prisons. It is formed by a Corôa of large pebbles between which spring tufts of grass. On the northern end grew a clump of the largest trees yet seen. The right channel being too narrow, we took the left, and bumped along the islet, leaving the break to port. It was not easy to escape a snag in the middle, where there are also many rocks. The Mandim fish croaked like a frog and grunted like a pig under our bows.

This day's sun had been burning hot, and till 1 P.M. we had no breeze. As we descend the atmosphere undergoes a notable change, like the air of the Mediterranean after the English Channel. Nothing can be more delightful than this sensation; one feels thawed; the "snow gets out of the eyes," the "ice leaves the bones," and man is restored to the passive enjoyment of life in the medium where he was first born to live. Hence our seamen, it is well known, prefer the West African Station, despite its fevers and dysenteries. A "spell of cold" easily explains the preference.

Nor can we complain of heat, remembering that we are in S. lat. 17° , about the parallel of Mocha in Southern Arabia. Here we have 85° (F.), there 105° . The climate is tempered by the large area of sea compared with land, by the abundance of water causing a regular ventilation, by the height above sea-level, by the hours of darkness being nearly equal to those of light, and generally by the shape of the continent. At times, however, especially under the tree-shade, the vermin bite viciously. Of the larger nuisances, I have not yet seen during my Brazilian sojourn the centipede, or any but spirit specimens of the lacraia, or scorpion, although Koster was stung by one, and in Patagonia the latter is plentiful as in El Hejaz. Hence the term is sometimes applied to the Bicho Cabelludo, or hairy caterpillar, called by the indigenes Taturana. The Carrapâto tick and the jigger, except in huts, are rare. We did not suffer from the Berne or blow-fly, nor from the Marimbombo, the "Jack Spaniard" of trappers. The borrachudo (*Culex penetrans*) which greatly affects cool and wooded Serras, at times gives trouble. The bite draws a point of blood which must be pressed out, and the place rubbed with ammonia, otherwise the itching becomes intolerable. I never travel without a large supply of "smelling salts," which are equally valuable against a snake or a headache. In this arid atmosphere the mutúca or motúca (which Southey writes "mutuça") gadfly is rare. The Mosquito,

generally called mosquito pernilingo,* but here muriçóca or murisóca (Morisoca, Koster), at times pipes a small song, in "la sharp," say the musically eared. The "bar," however, is as little necessary as is the "fever-guard." The insect is not a large variety, like the Vincudo of the coast, especially of the Mangrove rivers, and its threat is worse than its bite. In February and March, when the waters recede, and the banks, like those of an African river, are dressed in mire, the infliction is said to be severe. The most troublesome is the diminutive dark sand-fly, known as Muquim (Muquim, St. Hil.) or polvora. The Maruim or Morúim (Maroim, Koster; Miruim, St. Hil.; Merohy, Gardner), burns like a "blister" of fire; it produces swellings, especially around the eyes, even in those who do not suffer from the Mosquito, and where swarms are found it is as well to wear gloves and a gauze veil connecting head and body gear. The Carapana and a smaller variety, the Puim, which delight in the Assacú (Hura Brasiliensis), also bite by day.

At 5:45 P.M., after much labour, short and sharp, we were not sorry to find on the left bank a clearing known as the Curralinho. A little above was the Córrego do Negro, with a white-tasselled Ingazeira † drooping over the water. A black morador sold us a gourd full of eggs at the rate of five per "dump," copper or penny. Here we saw fine sugar, castor plants 15 feet high, and magnificent cotton. It was a fine study of wild life. The screams of the wild fowl told us of a lakelet on the right bank, and as the after glow deepened, flights of wild duck and the splendid rose-tinted Colheireira ‡ winged their way across the stream. The moon, nearly at the full, and almost obscuring Jupiter, rose majestically above the misty wall, the Serra da Piedade, which bounded the view to the left. The shadow of the vegetation upon the far side, as the lunar disc tipped the tallest trees, was nearly as well painted upon the mirrory waters as in the soft blue air. The river seemed to sleep, and over its depths brooded unbroken silence, except when a fish sprang to its prey. The stars and

* Mosquito, both in Spanish and Portuguese S. America, is properly speaking a "little fly," namely a sand-fly, and the name which we have perverted is thoroughly appropriate.

† Not Angaseiro as Halfeld has it. The name, Ingá or Engá, is applied to Mimosas

of various species, some bearing an edible legumen.

‡ The "spoonbill," so called from its chief peculiarity. The zoological name, "Platalea Ayaya" or "Ajaja," is evidently derived from the Tupy Ay'áya.

planets rose with no glimmering indistinct beams, as they appear upon the horizon in northern lands; the rays strike the eye at once in the full blaze of their beauty. At times a cold breath came from the highlands to the north-east, soon to be followed by a warm and violent gust from the north, which swept harmlessly over our sheltered raft. Then recommenced the persistent clamour of the "Curyangú" and the complaint of "Whip-poor-will," whilst in the distance the wolves bayed their homage to the Queen of Night. What a contrast to the hum of civilisation and the glaring of the gas!

September 13.—The morning was warm—65° F.—and we were en route with the rising of the "fall-sun," whose smoke-stained disk was harmless as in England. Presently we passed the Piedade River, which heads far to the north-east.* Under its influence the Rio das Velhas spreads out into a bay widening to 1500 feet and half a mile—my companion was reminded of the Yazoo River. The flat benches and ledges of the banks, fifteen to twenty-five feet high, show by their regularity the action of water. Half a mile below the Piedade we found the Cachoeira dos Dourados,† with rocks on the left; the channel to the east is shallow, and a bottom of heavy pebbles causes a break. Below the Coróa we poled across to the western side, shaving two large trees in the stream.

At 7.15 A.M. we passed the Córrego de São Gonçalo,‡ which takes its name from an old village and chapelry on the upper course. After making another channel by removing loose stones and safely cordelling down a difficulty,§ we came to another "Cachoeira do Desemboque," which M. Liais calls the most dangerous point on the Lower Rio das Velhas.|| It is a complicated feature; at the north is a gravel islet covered with trees;

* The mouth is 110 feet wide, and the left jaw is garnished with a green patch and fine trees; the stream is said to be full of fish, and, though shallow, it gives passage to canoes as far as its Serra.

† The Dourado, or gilt fish, the *Aurata* of Dr. Levy, so called from its red yellow belly and fins which flash in the sun, is one of the Salmonidæ, found in salt water and in streams where it cannot escape to the sea. It resembles a trout in shape of the body, not the head, and it grows to a length of two to four feet. It readily swallows bait and devours small fry. The

people consider it one of the best fish for the table, and the head and belly are the parts preferred.

‡ M. Liais has called it Córrego de Maria Grande.

§ Below the Córrego was the "meio brabo (half fierce) Cachoeira das Taboquinhas"—of the little bamboos. Then a long mass of black rock forms two distinct ledges, the northern stretching from south-east to north-west almost across the stream.

|| Here M. Liais has placed on the right bank a tall block of hill, which does not exist.

a white and sandy holm also well clothed, and below it a common sand-bar. The brawling river-channel on the right has not water enough for canoes. Here magnificent masses of green bulge out towards the stream, and are set off by large bunches of rusty-red yellow flowers, resembling from afar the autumnal and maturing leafage of the sugar maple (*Acer saccharinus*). This Paú Jahu,* when seen singly, is by no means beautiful; the Sertanejos make tea of the blossoms, and the ashes are used for soap. We took the left of the islet down a thalweg with a small sand-bank and two breaks in the centre. The second was the more dangerous; a rock below the surface threw back the flood in white foam. We then poled to the north of the Corôa and down the centre, inclining to the right.

Followed a confusion of small sand bars, † while in front rose the "Serra do Brejo," trending from east-north-east to west-north-west. The height is from 1300 to 1500 feet, and there are two distances, the nearer forested, whilst the farther is dyed blue with air. We halted for an hour at 1:30 P.M., when a high northerly wind set strong in our teeth; it lasted till 4 P.M., when it fell to the deadest calm. These breezes greatly retard progress, as the men seem to disdain the shelter of the bank. A charming reach then appeared, a long perspective of corresponding sides, some ninety feet high, into which ran large blocks of stratified and weathered stone. Below the small "Corôa da Cariôca," ‡ (of the white man's house,) the Rio das Pedras opens on the left a mouth of ninety feet from jaw to jaw. It comes from a distance of ten leagues, but at this season it is dry; such indeed is the case with all but the very largest drains.

The Corôa-cum-Ilha do Cahir d'Agua was the largest we had yet seen; it took us fifteen minutes to run by it, and in England it would have been a pretty little estate. The narrow right hand channel is garnished with splendid forest-trees, faced on the left

* The pilots called it Marmelo do Mato, or wild quince. The Jahú is also the name of a large *Silurus*, not found in the Rio das Velhas, but abundant in the Rio de São Francisco, the Upper Paraguay, the Tiété, and other streams.

† The first was a shallow break, the "Cachoeira da Cannella;" it is just below the "Corôa do Curral," a deep strong current with the passage on the left. The "Cachoeira do Cotovêlo" (of the elbow)

subtends a long island, and the "Corôa do Cantinho" (of the little corner) is a double islet, with dark rusty pebbles to the south and tall trees to the north.

‡ From Carýba, a "Carib," a white man, a Portuguese, and "Oea," a house. "Cariôca" was often applied to a small fort, and hence the name of the suburb of Rio de Janeiro. This Corôa has many snags on the right, the swiftness of the stream to the left sweeps them away.

by second-growth and scrub.* About 5 P.M. we anchored near the left bank, at the "Porto da Palma," a peculiar formation. Projecting into the stream, and flaked and caked with the mud of the last flood, was a natural pier 150 yards long by twenty deep, with a dip of 5° and a westerly strike. The substance is the "Pedra de Amolar," an argillaceous schist of greenish colour, sometimes bare, more often capped with ironstone; the cleavage is in all directions, the subaërial portion is very fragile, and the laminations vary from wafer thickness to a foot deep. A little below on the right bank there is a sister formation. We picked up specimens of this clay shale; as whetstones they were too easily broken.

The river plain on the left bank is baked to white mud and sprinkled with silt, showing that it is regularly inundated; small drains bear scattered lines of trees, and the rest of the vegetation is mostly bitterish water-grass, which will not feed cattle without salt. To the south-west the land, as the forest shows, is beyond the reach of water; here the soil must improve. The flat had lately been burnt, and the shrubby trees, well warmed, had put forth the tenderest green leafage in lieu of the scorched brown tatters that hung loosely to the twig tops.

This evening was the perfection of climate, fresh yet balmy. The boys fished successfully; everything bit voraciously, even at the bird-bait. Five douradinhos† and eight mandins soon lay crimped upon the ground, and when the line, nearly the thickness of a little finger, was left in the water, it was cut, the pilot said, by a piranha. Again the noise of water-fowl told us that a lakelet was not distant. Clouds high in air flitted over the moon's full disk, which threw across the water a pillar of tremulous fire, and crested with red the ripples that rose from the inky surface swirling under the further bank. The mobile physiognomy of this river is not the least of its charms. Its expression is changeful as that of the human face. Yesternight it was still and shallow as a mountain tarn, now it is swift and deep, covering the backwaters with flecks and curds of foam.

Presently the eclipse came on, and the dark shadow of our globe creeping slowly over the disk of the old "harvest moon," was

* The left bank showed tolerable soil in the beginning of this day's work, but the improvement was only temporary. As a rock

it was not nearly so fertile as the other side.

† Considered to be a small species of the dourado.

shown by reflection in the new moon's arms; the gibbus of the crescent, however, faced to the south. There were none of the sinister appearances, rather appalling than imposing, which accompany solar obscuration, the lurid copper-coloured air, the slinking of beasts and the silence of birds, and in man the feeling that even the sun is not above or beyond change. Here the light slowly waned, the various voices of frogs and night birds came from swamp and forest, bats flitted about, fireflies lit up the copse, and the fish splashed merrily to catch the gentle breeze. As might be expected, the human beings there present hardly noticed the phenomenon by looking upwards; a comet would not have roused their attention.* Then the glorious satellite climbing the zenith finally emerged from the shadow, and again shed silvery light and gladness over the nether world. By way of anti-climax we "turned in."

September 14.—We set out at 6 A.M. in warm and perfectly still air; foam was floating in lines down stream, and curdling near the banks where the deep water lies. An hour's work took us to the Ilha da Maravilha, where the Córrego do Lameirão† enters the left bank. On the opposite side appeared a good "improvement," the soil was excellent, and a fence of stakes and poles had been run down to the waterside. Presently we heard, for the first time, from a tall Jatobá tree, whose fruits are its delight, the hoarse roar of the Guariba monkey (*Mycetes ursinus*, or *Stentor*). It is here known by the general words bugío, and barbado, the bearded; the French colonists call it alouate. John Mawe declares that it snores so loud when sleeping, that it astonishes travellers; the enlargement of the larynx into a square bony box which causes the disproportionate noise, is now familiar to naturalists. This brown monkey was eaten by the Indians, and in wilder parts Brazilians do not disdain it. The pilot mentioned a similar species with a long fine black coat, which may be the *Mycetes Beelzebub*. He declared that the roaring of the guariba was

* Mr. Buckle, whose first volume had the good fortune to be designated by a popular writer "a *farrago* of energetic nonsense and error," remarks (i. 345) "there probably never has been an ignorant nation whose superstition has not been excited by eclipses." Possibly in the New World, where the operations of nature are on so grand a scale, man is steeled against

appearances which in other countries would stimulate his imagination. Who that has ever inhabited an earthquake country would think of dreading an eclipse, unless at least it be connected in the popular mind with earthquakes?

† "Of the big mud;" the pilot gave this name to an opening in the right bank.

a sign of the Rainy Season drawing near, and noted a variety of other small symptoms, such as the trooping of butterflies in moist places, the louder frog-concerts, the hum and chirp of the Cicada, the biting of the sand flies, and the song of the Sabiá, that Prince of the Merubidæ. During the last three days also, the soft and balmy atmosphere had been disturbed by gusts of wind, vapours here lay upon the ground, there accumulated into clouds, and distant sheet lightning flashed from the mists massing round the horizon. The smoke of the prairie-fires rose in columns, and they might have been mistaken for the fumes of a steamer; by night those that were near glowed like live coals, whilst the more distant gleamed blue. We prepared for an Ember week of equinoctial gales, but we hoped to be far down the São Francisco River before the beginning of the wet summer, which usually dates from the middle of October. As will appear, we had deceived ourselves.

About 10 A.M. we passed on the right bank the Ribeirão do Corrente; a small stream, which greatly swells during the inundations, was trickling down it: the line is not navigable, but the waters abound in fish, and these places will act as preserves when life is driven from the main line by steamers. The embouchure is marked by a columnar conical mass, which suggests an enormous cypress formed by vines and creepers swarming up a broken tree-shaft. Here a dog swimming across the stream showed little apprehension of the "Jacaré" (*Crocodylus sclerops*), and the people declare that those of the lakes are dangerous, whilst the river-caymans* are not. Lately, however, a woman was carried off in the Ribeira de Iguape by this congener of the dreaded African crocodile. It is said to prefer its meat "high," as does its big brother, and before deglutition to break the bones of its victims by blows with its ponderous head. According to Koster, the wild people eat it, but the negroes will not touch the meat; even the Gabams (Negroes of the Gaboon), who are believed to be cannibals. Both on the Rio das Velhas and the São Francisco we often saw the Jacaré protruding its snout from the water, basking in the mud, or lurking amongst the drift wood. No specimen exceeded five feet in length; in the Apuré and the equinoctial

* In old French, Caymand and Caymande are equivalent to "faineant;" perhaps the early travellers found the huge lizard un-

willing to move. It becomes unwieldy with age, but in youth it is very agile.

rivers it grows to four or five times that size. The negroes, it is well known, use the crocodile gall in their philters and poisons; the molars of the Jacaré are here hung round the neck as talismans against disease. The musky smell of the meat must deter any one but an "Indian" from using it, and the people ignore the alligator-skin boots which Texas invented.

A lumpy hill, grassy above and forested below, and stretching from north-east to south-west, strikes the stream at this point, and bends it from a straight course to the south-west and the north-east; this "sack" is seven miles long instead of one. Presently we passed a large Fazenda on the right bank of perpendicular clay, some thirty-five feet high; it belongs to Dr. Luis Francisco Otto of Guaicuhy, and we begin to acknowledge the odour of civilization. After a few obstructions,* we rested at noon on the left bank, sheltered from the strong north wind; here was a mass of bluish stone, which appeared to be finely laminated calcaire when it was only clay shale.

Resuming our way, we passed to port the Córrego das Pedras do Burity,† where the great bend terminates, and two nameless influents—I mention them, because they are "Corrêgos de Morada," where men have settled, and which afford a good "situação," giving value to the lands adjacent. At 4 P.M. hove in sight a tall blue wall of mountains, denoting the line of the Rio de São Francisco; the crew disputed about the name,‡ and also about a couple of Córregos further down.§

At 5 P.M. we made fast to the right bank of the Ilha da Tabua, which the pilots called Ilha Grande. It has a large Corôa to the south, with a mound of stiff clay, tree-grown and root-compacted, extending from south-east to north-west. The left arm of the river is here greenish in the centre, and beautifully clear under the banks; on the other side we saw a farm with a line of

* A sunken sand-bank (Areão) which must be passed on the left, a Corôa in the bend called Saco do Jequi, and a double tide-rip inclosing smooth water; this is formed by a beach (praia) on the right, which narrows the stream to 120 feet.

† "Córrego grande dos Buritis." Liais.

‡ One named it Serra do Jemipapo, and another the Serra da Tabuá; it may have been the Serra da Porteira (Liais) on the right or eastern bank of the junction.

§ In the map "Córrego da Gamelleira"

and "Córrego do Tamburil." The wild fig here attains a great size, and sometimes six stems spring up together. The Tamburil, pronounced Tamburi (M. Liais "Tambury"), also called Vinhatico do Campo, is a tall hardwood tree. The "Menino" insisted that the "Tamburil" influent should be called the "Gamelleira," and that it is "de morada," not navigable but coming from afar. The mouth is eighty feet wide from jaw to jaw.

noble trees, whilst the north is a tangle of wood, thicket, and grass.

For the first time we found the Corôa well stocked with birds.* The Urubú scavenger, regardless of the rifle, expanded his wings to the sun, and looked as if he wore a silver back. Small *Charadriadæ* hopped gleesomely about the sands, together with *Manuelsinho da Corôa*—little Emanuel of the Sandbar—a *Scolopax* with red-stockinged stilts, much resembling our sandpiper. The South American plover (*Vanneau d’Amerique*, *Vanellus cayennensis*, *Neuw.*), also with red stockings and pretty variegated plume, followed the cattle tracks. Spanish America calls it after its cry, Tero-Tero, the Portuguese prefer Quero-Quero (I want! I want!) and *Espanta boiada*, “Startle Cattle:” † its manners are those of the peewit, it haunts marshes and pastures, it seems never to sleep, and it is a great plague to the sportsman. In remarkable contrast with its unpleasant vivacity, is the solemn *Acara*, or heron with the long thin legs supporting a body always delicately white and clean. A tern very like the *Sterna hirundo*, looking snow-white against the slatey blue sky, fluttered in the lower air with the rising and falling flight of the butterfly. The *Gaivota*, or gull, which the Tupys term *Atyaty*, or *Cará-cará*, dark-backed and red-billed, reminded my companion of those which show communication between Memphis and the Mexican Gulf, one of the colonies which I saw upon the Tanganyika Lake. The whole flock rose and with circlings and swoopings followed and seemed determined to fight the dog *Negra*, occasionally varying the exercise by feinting to assault the men. They were enraged at our intruding upon their private property, and with proverbial stupidity they told by screams the secrets of their ménage. We retaliated by taking their eggs, ‡ which were about the size of a plover’s, with “splotches” of light and dark chocolate brown upon a dirty cream-coloured ground. They revenged themselves by a persistent “corrobory” round our camp-fire, which effectually banished

* The number, however, gradually increased below the *Paraúna* River.

† Thus Sr. *Ladisláo dos Santos Titará* sings, —

Vão quero quero pelo ar soltando.

‡ So on the lower *Purús*, in July the eggs of the *Gaivota* may be picked up by scores from the nests, round holes, four inches across and three deep, in the sand-

banks, where an upper coating of mud prevents the drifting of the wind; “the eggs, three or four in each nest, are of a dirty light green or brown, with patches as of dried blood; when fresh they are very good eating and much like puffins’ eggs.” *Ascent of the River Purús*, by W. Chandless. *Journal Royal Geo. Soc.*, vol. xxxvi. 1866.

sleep, and they were viciously ready by early dawn to "see the last" of us with taunts and execrations.

The "Menino" found upon the sands the parallel lines which might easily have been mistaken for cart-ruts; he declared it to be the sign of the dreaded Sucuriú,* or Watersnake, whilst Chico Diniz declared that the straightness of the trail showed a small Jacaré. This hideous boa mostly haunts stagnant waters, occasionally visiting rivers; it is amphibious, and when not disturbed by man and prairie fires, it attains the enormous length of thirty feet. I heard of one that measured sixty, and swallowed a bullock; in old travellers we read of men sitting down upon a fallen tree-trunk, which presently began—like the whale with the fire on its back—to change location. The "Indians" eat the Sucuriú which, like most serpents, is savoury and wholesome food; the civilized confine themselves to eels. The skin used to be tanned for boots and housings, now it is kept chiefly as a curiosity.

At Maquiné, a morador threw into the river, before I could secure it, a fine specimen of the Surucucú, or Çurucucú, first mentioned by Maregraf. It is the *Lachesis mutus* of Dandin, the *Crotalus mutus* of Linnæus, the *Bothrops Surucucú* of Spix and Martius, the *Xenodon rhabdocephalus* of my friend, Dr. Otho Wucherer (Zool. Soc. London, Nov. 12, 1861), and the "great viper" of Cayenne and Surinam, which is supposed to cause death in six hours. The length of this trigonocephal varies from three to eight and even to nine feet; its skin is of a dirty tawny yellow, with dark brown lozenges on the back, and the broad head gives it, to the connoisseur, a peculiarly vicious appearance. It is reported to be attracted by fire, but rarely to injure travellers. There are two species of this snake, the less common being the "Sururucú bico de jacá."

The other serpents of which the people spoke were the fol-

* The Boa Anacondo of Dandin (the Boa Murina of Mart., *Cunectes murinus*). "Sucuriú," properly "Sucury," is derived from "Suu" beast, and "cury" or "curu" a snorer, a snorter, alluding to its sibilant powers. According to Prince Max. (ii. 172) this boa is called "Sucuriú" in Minas, and "Sucuriuba" on the Rio Belmonte. Pizarro prefers "Sucruyu." Some write "Sucuruju" and even "Sucuriuh,"

and pronounce "Sucuriú." It is also called "Cobra de Veado" because supposed to be fond of venison, and Spix and Martius heard from M. Duarte Nogueira that it has attacked a man on horseback, and has even swallowed an ox. A Brazilian gentleman assured me that in Maranhão he had seen the terrible reptile swimming across the stream with a pair of horns protruding from its mouth.

lowing. The rattle-snake (*Crotalus horridus*), is known as the Cascavel (not Cascavella, as some write), a "hawksbell," and the Tupys called it "Maracá," a rattle, or boicinga, from "boia," or "boya," a serpent, and "cinga," a chocalho, or bell. It is well proportioned, in length between four and eight feet, and brown grey with lozenges of lighter and darker colour. It prefers stony and hilly ground, where it can easily sun itself, and has a kind of domestic habit of making a home. It is very lazy and harmless, except when troubled; hence, probably, its fame for listening most willingly to the voice of the serpent-charmer. The rattles* soon give warning, and it may be killed with a switch; cattle are often poisoned by it, but I have not heard in the Brazil of a man dying by its bite. Possibly the dampness of the climate may modify the venom. The fiercest of the lance-headed vipers, and emphatically declared to attack mankind, like the Cobra de Capello of the Guinea Coast, is the Jararocá (*Cophias* or *Viper atrox*; *Bothrops Neuwiedii* of Spix and Martius, alias *Crespidocephalus atrox*). It is of a dirty dark yellow, turning to brown-black about the tail, and although Koster gives it nine feet, it seldom exceeds five feet in length, and the Jararacussu is the same reptile when full grown and old. The Caninina often mentioned by old writers, is a *Coluber* not much dreaded, and the papo-ovo or egg-eater much resembles it. The Cobra Coral is so named by the people from its resemblance to a necklace of mixed corals; the term, however, is applied to four, five, or more animals of different species. The common Coral, *Elaps corallinus*, called *Coluber fulvus* by Linnæus, who saw it when the beautiful colours were tarnished by alcohol, has black, carmine-red, and greenish-white transversal rings upon a smooth thin body. All declare, both in books and vivâ voce, that it is as venomous as it is charming; but the fangs, though formed for offence, are so placed as to be almost useless. Another Coral (*Coluber venustissimus*), is also ringed with tricolor ornaments, but the head and gape are larger than that before-mentioned. A third ringed snake is the *Coluber formosus*, with an orange-coloured head, and not venomous. Lastly, there is the Cobra Cipó, or whipsnake (*Coluber*

* Dr. Renault of Barbacena declares that the rattle (sonnette), is perpendicular in the male and horizontal in the female.

bicarinatus, the Cypô of Koster), with a line of carinated scales on each side: it is often confounded with the Cobra Verde, a fine, green, harmless Coluber. I have killed it in a tree despite the prayers of the bystanders, who declared that it can project itself like an arrow. The same tale is told of the Cananina, which is mentioned as a "flying snake" by Koster.

When first visiting the Brazil, travellers come prepared to meet serpents on every path, their minds are brimful of beasts, every spider is deadly, they suspect the intentions of the cockroach, and a thorn-prick suggests a scorpion. Even the unfortunate Macaco fly, the African Millipede (piolho de Cobra), the Amphisbæna or Slow-worm ("Mãi das Sâmbas"), the innocuous "Dryophis," and the Gitaranaboia* are capable of dealing sudden death. Presently they find out that the reptiles have retreated before man, either to the seclusion of the maritime regions, or into the Far West. As in Africa, so here, "snake" means something more or less fatal. I presume that man's aversion to this harmless and maligned animal is partly traditional, derived from the old Hebrew myth, and, to a certain extent, instinctive; the brightness of the eye, upon which Mr. Luccock could not look, and the form of the head, a curious resemblance to humanity, being the most remarkable points. I have heard, even amongst the educated, of an inherited horror of the snake, but this must rank with the tales of the Serpent kings, and with the "Indian" fancy that a man when bitten must not look at a woman.

The Brazilians inherit from the old inhabitants † a sensible way of treating snake bites, but their system admits of improvement. The savages applied above the wound a ligature, which

* This insect, of which the traveller will often hear, is described as about two inches long, with an oblong body, a snake-shaped head one third of its total length, and wings like those of the tree cricket (Cigarra), but much longer. The proboscis folds under the abdomen like the blade of a pen-knife; this stylet is supposed to be thrust forth like a bayonet when the insect flies straight as an arrow, and as it is always blind it victimises everything which comes in its way.

† And from the Africans. I could not, however, find any traces of the "Mandigueiro" or serpent charmer, who, according

to Koster, is the West Indian Obeah. But the word is evidently a corruption of Mandingo, the old and incorrect form of Mandenza, a Semi-Semitic Moslem race, well known at "Sã Leone." Wonderful tales are told of these "Curadores de Cobra," how they could handle the most venomous reptiles, cure the patient (curado de cobras) by wrapping a tamed snake round his head and shoulders, or by reciting magical words, or by the use of "contas verdes," literally "green beads," which were probably nothing but the blue Popo bead of which every West African traveller has left an account.

prevents the blood reaching the heart for some time; the civilized bind it so tightly that mortification of the limb has followed. Both indulge in a butcher-like style of surgery, which has been imitated by the scientific man.* They almost always administer as sudorifics spirituous drinks in large quantities, and this is the secret of the cure; the action of the heart is restored, the venom is expelled, and the brain returns to its normal functions. When the patient, who mostly complains of a "sinking" sensation, as in cholera, becomes intoxicated he is safe. On the other hand they mix with the alcohol what is either harmless, as lemon juice, or spirit in which a Cobra Coral has been macerated, or what is positively injurious, as mercurials. There are many simples in general use, such as the Herva Cobreira, the Aristolochia, the leaves of the Plumieria obovata, and the grease of the Teyu, tree-lizard,† whilst Aves and Paternosters do the rest. "On dit que les sauvages guérissent très bien les morsures des serpens, et l'on m'a même assuré que parmi eux personne ne meurt de cet accident."‡ Evidently the civilized man ought not to die unless he delay too long to apply ammonia, eau de luce, or the "whisky-cure."

Our last night on the Rio das Velhas recalled to mind the words of an eloquent Brazilian writer. "I cast my eyes now on the stream spanned by a line of fire reflected from the planet Jupiter, then on the banks whose beautiful woods concealed the rich champignons. The river, a natural line of navigation, despised by and despising art, rich in a thousand kinds of produce, fertilizing in its sinuous course millions of acres, was full of all but human life; to its silent banks here and there a canoe was tied, and from its waters rose the log which the solitary fisherman makes his perch; while at rare intervals a

* Thus M. Sellow records treatment by scarification, repeated burning with gunpowder, and peppering with Cantharides. Labat, mention no others, scarifies the wound. Koster observes, "le rum est aussi administré jusqu'à produire l'ivresse."

† The Teiú or Teyu (*Lacerta Teguixin*, Linn.), is black spotted with yellow, and, including the tail, four feet long. Yves D'Evreux writes Tyvu, Maregraf Teiuguaçu, M. Denis Tiú (*Tupinambis monitor*), and declares with St. Hil. that the white, savoury, and delicate meat is eaten by Brazilians in good circumstances. This is

certainly not the case in the Sertão of these days. Koster mentions the Tijaçu, which he believes to be the Teguixin; the Calango, a smaller variety also edible; the vibra, and the lagartixa, a house and wall lizard, a vivacious little animal which destroys flies and other insects. Some travellers have confounded the Teiú with the Jacaré, as the old Greek who wrote the *Periplus* did at Zanzibar. The good missionary (Yves) specifies the Tarouïre as a grand lizard, but his editor corrects him, and declares the *Taranyra* to be smaller than the Tiú.

‡ Prince Max. ii. 294.

dwelling-place, and clearings that ignore civilized agriculture, dotted the forest-shore. Such misery and so much want in the Old World!—here such neglected wealth, and so much that can make life happy! Lands that will fructify every manner of plant and grain cast into their bosom, shoals of fish to feed the poor, a wealth of precious stones and ores, a channel easily connecting with the outer world! But the age shall come, and the day has dawned, when men shall flock to these unknown regions, when gardens, quays, and works of art, shall adorn the river side, when town and village shall whiten the plain, and when the voices of a happy people shall be heard where the profound solitude and silence are now broken only by the moan of the dove, by the scream of the night-bird, and by the baying of the wild dog.”

So be it!

CHAPTER XIII.

TO AND AT GUAICUHY.

LANDING.—THE “JIGGERS.”—THE GREAT “MEETING OF THE WATERS.”—GUAICUHY DESCRIBED, THE MANGA AND THE VILLA.—THE SERRINHA AND ITS VIEW.—THE GOOD DELEGATE OF POLICE, SR. LEANDRO HERMETO DA SILVA.

“A descrição das scenas de natureza deleita, a dos costumes instrue.”

“Aquelle que só deleita toma se superficial, o que só instrue, aborrecivel ; casemos pois estas duas qualidades.”—*A. G. Teixeira e Souza.*

A HOUSE on the left bank kept up during the night a red fire, which shone through the dark trees, another evidence that we were approaching a centre of settlement. After a few days of traveller's life and liberty, of existence in the open air, of sleep under the soft blue skies, of days without neck-ties, the sensation of returning to “Society” is by no means pleasant ; all have felt, although, perhaps, all will not own the unamiable effort which it has cost them. The idea of entering a town after a spell on the Prairie or on the River, is distasteful to me as to any Bedouin of the purer breed, who must stuff his nostrils with cotton to exclude the noxious atmosphere. I looked forward with little pleasure to breaking up my crew, and to entering Guaicuhy.

The first of Ember Week (Sunday, September 15) showed a warm cloudy morning with a north wind, contradictory signs. We passed on the left the *Córrego da Tabua*, it comes from the Serra of that name, a continuation of the Palma range ; about two miles from the mouth is an *Arraialsinho*, or little village. Presently rose before us the peaky Serra do Jenipapo. The uniform river-banks would in Europe be called a forest ; here they seemed utterly civilized, with their *Coqueiro* palms, their huts and vegetable-plots, and their scatters of old and new

clearings. The river widened out and became somewhat shallow; the sole obstacle was a sunken rock known as the Páú Jahú.

We "cleaned ourselves"—literally not funnily—and prepared for delivering letters of introduction, which, being directed to absentees, all proved useless. About 10 A.M. we made fast at the Porto da Villa do Guaicuhy, the port being a rough clay bank, covered with thicket, through which a path is cut to the upper settlement. Presently we received a visit from the Delegate of Police, Sr. Leandro Hermeto da Silva, and sundry friends; he kindly detached a sergeant to find us a lodging at the Porto da Manga, a few hundred yards down stream, and close to the junction of the two great rivers, das Velhas and de São Francisco. We were soon established in the house of Major Cypriano Medeiro Lima, who had offered us its hospitality at Diamantina. It was in the usual style, mud and wattle walls, containing a well-ventilated room which boasted of a table, a dark closet with a pair of "catres," or cots, one with a bottom of cow-hide, the other with leathern thongs. A passage nearly blocked up by the big water-pot led to a kitchen distinguished by thin stones upon the ground, and to a little railed compound well calculated for the accommodation of beggars, pigs, and dogs.

Here a mature old age ends the stream which we have accompanied from its babyhood for the last three months: this, however, is not a Thanatos, it is a Mokshi, an absorption. It was impossible to contemplate without enthusiasm the meeting of the two mighty waters which here lay mapped. The "River of the Old Squaws" sweeps gracefully round from north-east to nearly due west, and flowing down a straight reach about 550 feet broad,* merges into the São Francisco, which flows from

* M. Liais gives 167 metres. The figures of the junction are as follows: the Rio das Velhas discharges 209 metres per second, and lies above sea-level, 2,365 palms (Halfeld), or 567 metres (Gerber), or 432 (Liais at the confluence). I made the Manga 1774 feet high (B. P. 209°·40, temp. 45°). Before the confluence the São Francisco is 359 metres broad, more than doubling the Rio das Velhas, and the debit is 446 cubic metres. The limited discharge is 655 cubic metres per minute.

The Barra or mouth of the Rio das Velhas, south lat. 17° 11' 54', and west

long. (Rio) 1° 43' 35", may be considered almost in a straight line of prolongation of Rio de Janeiro, Barbacena, and Sabará. The distance from the arc of the great circle uniting these points is only five geographical leagues to the west, although the old maps placed it far to the east. The deviation from the direct line prolonged from Rio de Janeiro to the Barra do Rio das Velhas, is only 3800 metres, about half a Brazilian league, or $\frac{1}{172}$ nd of the total distance, 656 kilometres, or 5° 55' 31"·4 (355 geographical miles).

the east to receive it. The right bank of the Rio das Velhas is of stiff clay standing almost upright. On the other side is a little *Chácara* with the plots of Castor-shrub which stretch in blue-green tufts towards the water, backed by a clump of oranges and bananas. Beyond it, at the point projecting into the united rivers, is a matted forest of wild figs, *Páu Jahú*, and other wild growth.

I remained at the Manga from the 15th to the 18th of September; the house, which had been long unoccupied, was well tenanted by the *Bicho do pé*, and two of them chose to lodge with me. It is a beast of many names, *Pulex penetrans*, *P. subintrans*, or *P. minimus*. The old French Missionary Yves D'Evreux (1613—14), calls it *le Thon*, and the modern Gauls speak of "*des biches*"*—thus the neo-Latin tongues borrow from one another, only changing the terminal vowels. I have also seen *Brûlot* and "*Pou de Pharaon*," although Pharaoh was never in America. The Tupys knew it as "*Tumbýra*." The Spaniards chose *Nigua* and *Chigua*,† from which again the French took *Chique*, and the term has descended to us in various forms: *Chigre*, *Cheger*, *Chegre*, *Chegoe*, *Chigo*, *Chigoe*, *Chigger*,‡ and finally the *Jigger*, thus immortalised by the Negro minstrel:

Rose, Rose, lubly Rose,
I wish I may be jiggered if I don't lub Rose.

This nuisance especially affects coffee-stores and deserted abodes: § the old travellers bitterly complained of it, and carried camphor in their boots, being careful never to go barefoot. "All persons of whatever rank," says Southey, speaking of Santa Catharina, the island (iii. 861), "carefully wash their feet every night, as the best preservative against the *Chiguas*,"—which it is not. A traditional naturalist, wishing to carry home a live speci-

* "*Bicho*" in Portuguese is a very comprehensive word, as Sir Charles Napier said of Hindostani; it applies to everything, from a flea to an elephant, and even to a steam-engine (*bicho de fogo*, *bicho feio*). Koster pleasantly relates how, being a Protestant, he was called in the out-stations "*Bicho*."

† "*Chica*" is also used, and M. F. Denis, the editor of Yves D'Evreux (Notes, p. 416) writes "*Niga*."

‡ The "*Chigger*" or "*red bug*" of the

Southern States of the Union, is, I believe, a kind of tick which, like the *Carrapato*, affects the woods. It does not hatch its young in the body, but the result is a painful pimple.

§ According to Koster (ii. xix.), it is not found in the plains of the Northern *Sertaõ*, and some people in parts badly infested have been so much preferred by the insect, that they were compelled to leave the country.

men, would not be operated upon, induced mortification, and became a "martyr to science." I have often seen boys with their toes dotted over, as if pepper had been sprinkled upon them, but no death has been recorded, and I have heard that careless negroes have lost their feet by amputation.

The Jigger, seen under a microscope, has the appearance of a small flea with well developed body, and of somewhat lighter colour. It crawls more quickly, but does not jump so well as the ordinary pulex; the popular belief is that the male is never found. It burrows under the nails of the hands and feet, especially the latter; I have extracted as many as six in one day, but never from the fingers. The sole is also a favourite place; in fact the Bicho colonizes wherever the skin is thick—hence its preference for negroes. Its proper habitat is between the cuticle and the flesh, into which it does not penetrate, and where there is not lodging room it falls off after drawing blood. Having ensconced itself bodily, the jigger proceeds to increase and multiply; the small dark point develops to the size of a pea, and can move no more. The light-coloured bag is enormously distended with eggs of a slightly yellow tint, and after producing her fine family the parent departs this life.

The small livid point which appears about the nails is generally accompanied by a certain amount of titillation which old stagers enjoy; they describe it as *sui generis*, and make it almost deserve the name of a new pleasure. Men with tender skins easily feel the bite, and remove the biter before it can penetrate. They then send for a negro, always the best practitioner, and he proceeds to extract the intruder with a pin in preference to a needle. Should the sack be burst, and the fragments not be all extracted, the place festers, and a bad sore is the result; some sufferers have had to wear slippers, and have walked lame for weeks. The wound is finally cicatrized with some light alkali, even snuff and cigar ashes are used, and a little arnica completes the cure.

If any place bear the stamp of greatness affixed by Nature's hand, it is this Junction. It is the half-way house on the mighty riverine valley; it has, or rather it can have, water-traffic with Sabará, Diamantina, Curvello, Pitangui, Pará (or Patafugio), Dôres de Indaiá, Campo Grande, Paracatú, São Romão, and the other settlements on the São Francisco River. It links together the Provinces of Goyaz, Pernambuco, Bahia, and Minas, and

before many years the steamer and the railway will connect it with the Capital of the Empire. I shall ink more paper than enough for the present settlements; thus, when my forecast of their future greatness shall have been justified, the traveller may compare his Present with my Past, and therein find another standard for measuring the march of Progress as it advances, and must advance with giant strides, in the Land of the Southern Cross.

In early colonial times the Junction of the rivers and the settlement near it were called Barra de Guaicuhy, and formed an old Julgado, or Chef-lieu de Justice, extinct about fifty years ago. The later generations translated the Tupy name into Barra do Rio das Velhas. The district and the municipality were created in 1861 (Provincial Law, No. 1,112 of Oct. 16) by taking in part of Montes Claros, São Romão, Paracatú, Curvello, and Diamantina, and the principal town took the name of Villa de Guaicuhy. Afterwards were annexed to it Mumbuca and the new districts of Estrema, Pirapora, and São Gonçalo das Tabocas, and now it is divided into four, namely, Guaicuhy, São Gonçalo, Pirapora, and Estrema. The population is stated to exceed 15,000 souls, with 1200 voters and seventeen electors; the latter seldom exercise their functions, as the College sits at Montes Claros, distant 120 to 200 miles of vile road from their several homes.

The settlement is divided into two Bairros, or Quarters. Near the confluence is the (Arraial da) Manga, or the Cattle-ford, popularly called the Port. The upper village is the Villa, formerly the Arraial da Porteira, so called from a neighbouring range, also an old name. The municipality has a single parish, the "Freguezia de N^a S^a de Bom Successo e Almas da Villa de Guaicuhy."

The Manga is a wretched decaying village, apparently doomed to destruction. It is perched upon an almost upright bank of white-yellow clay, twenty-nine feet six inches high, and the walls of the tenements show a water-mark of more than six feet; thus the total of the rise is between thirty-five and thirty-six feet, with a weight which nothing can withstand. The river, as usual with large streams, flows upon a ridge, and swings towards the north side, which readily melts away; its course will be arrested only by the Serrinha da Manga, or Muritibá, a long low lump of hill to the north. The southern bank projects into the São Francisco

a long tongue of sand, with hardly five inches of water at this season.

The Manga bank is painful climbing, as that of Angolan Kuisambi, and its rude attempts at steps, when greased by rain are safe only to the semi-prehensile feet of the natives. The only conspicuous building, upon whose tall, gaunt, sloping roof of tiles the traveller's eye first lights, is the Bom Jesus de Matosinhos; it fronts the meeting of the waters, or south, with a little westing, and it now stands almost at the edge of the precipice. Built of ashlar and lime, it shows that in Colonial times the place knew better days; as usual it is half-finished, a "work of Santa Engracia." The southern entrance has never been roofed, the sacristy to the east is bare scantling, and the belfry is the normal gallows of three timbers. Pilasters and pulpits of cut stone are destined to remain in embryo, and a neat arch of masonry intended to mark the high altar to the north, now the body of the temple, is foul with weeds. Beyond the Bom Jesus is a small rum-distillery, and further down stream the "bush."

Formerly the Manga had two thoroughfares, but in 1865 the inundation swept away the most convenient portion, and only part of "Water Street" shows a double line of blocks and huts, numbering twenty-four. They are built upon flags of hard blue sandstone, resembling lime, sometimes capped with iron, or showing junction with reddish gneiss. The new thoroughfare to the south, and running parallel with the former, has thirty-three tenements which look upon a road ankle-deep in sand. These lodgings contrast badly in point of comfort with Dahome, or Abeokuta, in Egba-land: they are unwhitewashed cages of wattle and dab, roofed with half-baked tiles. All have ground-floors of tamped earth, except the Sobradinho,* belonging to Sr. João Pereira do Carmo, merchant, and Juiz de Paz. In the Brazil this official has conciliating powers, intended to spare appeal to the Juiz Municipal. But in country places the servants of old Father Antic, the Law, not unfrequently recall to mind the Scotch saying about a far cry to Loch Awe.

Most of the houses have back-yards, green with bananas, Cuietés or Calabash trees (*Crescentia Cujete* or *Cuyete*) and

* The Meio Sobrado is a single-storied house upon a raised platform of masonry. The Sobradinho is a one-storied house with

a single room above it, and the Sobrado is a two-storied dwelling—a casa nobre when well made.

oranges, which are exported down stream. The Settlement abounds in manioc, and as wheat was not to be found, we laid in a store of polvilho or Tapioca cakes (rosclas de Tapioca)* and fubá-meal, which is very expensive on the Upper São Francisco. As in Africa, the housewives would not sell their eggs. Turkeys thrive here, and cost 2\$000 a head. About half that sum is paid for fowls and for Guinea-fowls, which are exceptionally held to be good food. The people do not readily part with their provisions, and they are perniciously frugal. A month's work at manioc gives them bread for a year. Moreover, much more is to be had by barter than for money. All determined that we were merchants, and offered cent. per cent. for tobacco. Had we known this I should have invested heavily in the article, and thus made myself a something intelligible. A fatted bullock costs 30\$000, a cow 15\$000, a pig from 10\$000 to 16\$000, and fine goats and sheep, mostly four-horned, 2\$000. Fish is, of course, cheap. A fresh Curumata, weighing 4 lbs., is worth a halfpenny, and a salted Surubim of 32 lbs., from 3\$000 to 6\$000. The high value of the latter is owing to the price of salt, which must be imported from the lower river, and the plate of 4 lbs. or 5 lbs. fluctuates between 0\$800 and 1\$320. Washerwomen and sewing women gave their services at the cheapest possible rate.

At this season the Manga is tolerably healthy, but between January and June, agues, typhus, and malignant marsh-fevers (carneiradas) decimate the inhabitants. Many are chronic invalids, paralytic, or suffering from ophthalmia and goître, which below Guaicuhy will cease to offend the eye. The climate has won for itself an enduring bad name;† but the blame attaches

* Our "tapioca" is a mere corruption. I bought,—

Half a quarta of Manioc flour	1\$000
4 lbs. of toucinho lard . . .	1\$280
32 lbs. of carne seca (sun-dried beef)	3\$840
Total	6\$120

† "Le long du Rio San Francisco, à l'époque où le fleuve baissé, le pays est affligé d'épidémies qui enlèvent beaucoup de monde et deviennent surtout très dangereuses pour les étrangers, ainsi que pour les voyageurs qui ne sont pas acclimatés" (Prince Max. iii. 185). This is repeated by many a writer, and is sensibly

modified by Lieut. Herndon (p. 326). "The mere traveller passes these places without danger. It is the enthusiast in science, who spends weeks and months in collecting curious objects of natural history, or the trader, careless of consequences in the pursuit of dollars, who suffers from the Sezoens." As a rule on the São Francisco the fevers, though at times of malignant type, are mostly "chills," and the people, where unable to procure the much valued Quinine, treat them with simples; such as Sal Amargo, the antifebrile Quina, the purgative Fidegoso, the bitter root Cipó de mil-homens or de Jarrinha (a diaphoretic and diuretic Aristolochia).

more to the dirty and dissolute habits of the people than to the maligned river.* Drainage is absolutely unknown, and the worst sites are preferred, because they are the most handy. The houses are impure to the last degree. The pig lives in the parlour, and "intramural sepulture" here survives. The diet,—fish and manioc, manioc and fish,—assists the work of dirt; hence the sallow unwholesome look and the listless languor of the people. They drink to excess new rum, the "Kill-John" of the Mediterranean. On Sunday evening hardly a soul was sober, and two of my men, the "Menino" and Agostinho, could hardly stand. Having little else to do, their libertinism is extreme. They sit up half the night chatting and smoking, playing and singing. Of course they are unfit for work till nearly noon on the next day. Hence too often poverty, misery, and churlishness.

The inhabitants are all more or less coloured, and as the yellow skin denotes the Brahman, so here a light-tinted face is invariably a token of rank. The genus Vadio abounds, and as these idlers are not above a little stealing, we removed, by advice, the iron grating of our raft's galley. On common days many of the men are absent at their roças or are fishing with seines (Puças), † and with long hand-lines. The street and a half shows here and there a vagrant stretched upon a bench or on a mat to protect him from the sand. Rarely a great man passes, with wooden box-stirrups and ambling nag. The animals are like those of Pernambuco, small for want of breeding, but showing original good blood in the shape and carriage of the head. At times a Caipéra, mostly a vagueiro or cattle driver, rides in leather-dressed cap-à-pié, showing that he is a denizen of a thorny land. ‡ The slave boys

* Dirty not in person but in lodgings. St. Hil. (III. ii. 37) remarks: "En général, c'est là une des qualités qui distinguent les Brésiliens; quelque pauvres qu'ils soient leurs chaumières ne sont presque jamais sales, et s'ils ne possèdent que deux chemises, celle qu'ils portent est toujours blanche." He doubtless spoke as he found matters, but he wrote much from memory. My experience amongst the poor showed me that they reverse the practice of the Netherlanders, amongst whom I have seen a woman whose arms required a bath-brick, diligently scouring a door-step white as snow.

† The Puça is a bag-net of reeds which two men drag along the bottom.

‡ These leathers are best made at Janu-

aria, on the Rio de São Francisco. A whole suit costs from 5\$000 to 25\$000, and it is far superior, softer and more durable, than what a London tailor supplies for £5. The preference is given to the skins of deer, Veado, Sassuapara, Catingeiro and Mateiro; an inferior kind is made of the Capivara, here called Caititú. Bullocks' brains are principally used to soften the leather, which becomes like casimir; this is a trick doubtless inherited from the savages of the land. The full suit consists of the Chapéo, a billy-cock hat, sometimes flapped behind like a sou'wester, the Gibão or jerkin, a short jacket opening in front and with pockets outside, the Guardapeito, an oblong piece of skin extending from throat

sit upon the cruppers of their lean garrons as the youth of Egypt bestride their donkeys. On ass-back the seat is correct, not on horseback. Nothing else is to be seen but birds, beasts, and naked lads. The dogs and pigs are apparently in a state of chronic civil war, and the only gymnastic of the citizen and the citizenne consists of "sticking" them.

Amongst these half-breeds respectable men are invariably civil and obliging. Churlishness increases with the deepening tint of the skin, and at times, when very dark, it indulges in the peculiar negro swagger which speaks of a not unintentional rudeness. When, however, the men are sober, they show nothing of the ruffianism so common amongst the European uneducated. A stranger would often look upon their manners as offensive, whereas the offence proceeds not from intentional ill-will, but from a total want of tact, incapability of discerning the decorous, and absence of perception that they are giving offence. Men come to the door, lean against the post, stare like the Ophidiæ, stare like the gods of Greece and Rome, with eyes which never wink. They care not whether the man in the den is eating, shaving, or bathing; they intrude conversation, and they make *viva voce* personal comments and remarks, as the Central Africans would do. In fact the

Realm of Bocchus by the Blackland Sea

is the best of patience-teachers. You there learn, and must learn, to endure what the Englishman hates, perhaps, most. The women enter uninvited, cigarette in mouth, and sit down for the first time like old friends. We have a pretty neighbour, much resembling the "Yaller Gal of New Orleans." The S^{ra} Minervina of Salgado loved, said the tongue of *médisance*, a soldier, not wisely and not too well. Like the rest of her sex in this region she carried one shoulder always bare, and she asked for everything, valuable or valueless, which met her sight. The

to stomach, with a hole through which the head is passed, and acting waistcoat, and the Perneiras or tights, which reach the ancles. Over these boots are drawn on the feet, and protected by closely fitted soleless shoes, like the under slippers of Egypt.

I soon adopted leather. Brazilian travel, especially in the interior, wears out a pair of overalls per month. Where the land,

however, is not very thorny, the suit may be limited to the breeches or even to leggings; some backwoodsmen here economize the "seat." A modern author justly praises the material for long lasting, but he probably never tried what he describes as "*frais et léger*." It is, as most of Master Shoetic's brethren know, heavy and cumbrous, hot in hot weather, cold in cold wet in wet.

smallest trifle was thanklessly received, because better than nothing. The women are here tolerably independent of the men. I often saw them paddling themselves and their children across the streams.

We took an early opportunity of visiting the Serrinha, behind or north of the Manga. Beyond the fifty yards of river-ridge lies a bayou-bed, mud-flaked and in parts still green; this partly explains the fevers. On the damp margin grew a circle of Crioulina trees, regular and domed like enormous oranges, with thick trunks two feet high, and leafage like the myrtle of tenderest pistachio-green; the perfume of the flower resembles vanilla, and the small red berry is eaten by children. They contrast strongly with the "Carrascos" and Cerrados of the broken waterless ground further from the stream. This vegetation is European rather than tropical in want of variety, and it presented anything but a gay prospect, this depth of winter in the heat of the dog days. Many were leafless, like hazels in our winter; some were dead, killed, according to the people, by the heat of the sun; others said that frost was the cause. The ground was rich in the black "formiga douda," or mad ant, which loves the orange tree; it is so called because it moons about as if mad or drunk. Wens of termite nests* throttled the branches, and we were once pursued by a swarm of furious Marimbondos or tree-wasps. This nuisance must be abated by breeding birds; we found few of the feathered race, and ornamental rather than useful, with brilliant tints they lighted up the dull and arid view. Passing a few outlying hovels, each of which sent forth its barking cur, we began the ascent. Here the land shows, where denuded, red and yellow sandstone, new, shaly, and regularly stratified; perhaps it is the "Old Red," discovered in the Serra da Porteira by Dr. Virgil von Helmreichen, the same who detected granite in the limestone near Gongo Soco.† The dry grass was still burning in parts, for the future benefit of the few cows, and the surface was cut by wet-weather rivulets. On the higher levels, well swept by the cool breeze, houses might be built beyond the range of malaria, but there

* The nest of the termes arborum is called "panella," a pot.

† Similarly on the Amazons River, older observers believed the slaty rock and hard

sandstone seen on the banks at Manaus to be Trias or Old Red: Prof. Agassiz (p. 199) determined both to form part of the "great drift formation."

is no surface water, and none but a madman would now dream of laying down pipes.

The view from the summit delighted us. To the north the riverine valley of the joint streams was broader than the eye could estimate, and the least width was nine miles. To the east is the crescent-shaped Serra da Porteira,* a long tongue of raised land, convex towards the stream. Southwards the horizon was broken by the high blue lines of the Serras do Rompe-dia and do Saco Redondo. A little north of west stood the Serra do Itacolumi,† forming with the Jenipapo and the Varginha to the south-west another half-moon, whose bulge faced the river. The Jenipapo is said to bear a plateau on its head, and to abound in gold. These western mountains have gaunt forms, as if broken by volcanos, and there are two pyramids connected by natural curtains, which make magnificent land marks. Below the peaks there are gradings of horizontal lines, evidently formed under water. The surface bore the growth of the great and arid plains called Campos Geraes, and resembling the upheaved "levels" of England and the "carse" of Scotland. Here it was dull and grey, there the trees were donning their spring dresses of liveliest green. ‡

Between these limits of the stream in days of yore, the Rio de São Francisco winds up through its verdant avenue from the south-east, spreading out into bays 1800 feet broad. Above the thin confluence-point of trees and sand, its noble tributary, the Rio das Velhas, serpentines from the south-south-east, and shows a silvery lake on the left bank. Grand are the curves described upon the lacustrine lowlands, the "straths" and "dales" of our country, whose vast extent smokes like a battle-field with prairie fires. During the rains the flats must become a broken line of lakes. Below us lies the shallow line of village,

* M. Halfeld calls the northern part of this Serra "da barra da Manga," and connects it to the south with the Serra do Rompe-dia. South of the confluence he places the Serras da Tabua and do Trichete.

† Down stream, near the town of Remanso, there is on the left bank a "Serra dos Columis," and a hill called "Itacolumita" is at the junction of the Rio Preto with the Rio Grande.

‡ The extreme breadth of the riverine valley as determined by its tributaries, lies between the Serra Grande or do Espinhaço on the right (east) and the highlands that divide Minas Geraes from Goyaz, under the names Serra dos Piloões, da Tiririca, dos Araras and do Paran (called by St. Hil. Serra de S. Francisco e do Tocantins). Thus its extreme breadth would be 240 geographical miles from Rio de Janeiro to W. long. 4° (Rio).

and scattered near the junction are plots of bright and luxuriant sugar-cane.

I did not neglect to inspect the Villa de Guaicuhy, distant from church to church about three-quarters of a mile. The path wound along the right bank of the Rio das Velhas, which is only partially subject to inundations; their limit is denoted by green grass and thickly foliaged *Almacegueiros* (gum trees); the prettiest feature is the *Páu de Arco de Flor Roxa*—the red-flowered *Bowdarque*. This *Bignonia*, rich with mauve-coloured trumpets, is used as an anti-syphilitic, and the *cerne* or heart is made to do the duty of *lignum guaiacum*. In places there is good ground for cotton grown annually, and “topping” would turn its fibre to lint; here the comparative aridity of the soil would save the trouble of cutting the tap root. The people say that there is too much sand and too little water for coffee; the “*Cafezal*” is an exception, and the best are in the *Fazendas* of *Rompe-dia*, *Bejaför*, *Canabrava*, *Munbuca*. We crossed a dwarf ridge of the usual shaly sandstone, and a fuman now dry; beyond it lay *Campo* ground, dotted with a few cattle.* Two bulls eyed us curiously, but the novelist’s pet animal is here unknown.

Presently we crossed by stepping over stones the normal bridge, the small *Córrego da Porteira*, which drains the crescent-shaped *Serra* of the same name; other streams can be added to it, and thus there will be a sufficient water supply for the future city. Passing the *Quartel* or barracks, a more substantial house than usual, we issued into the square, where the superiority of the site at once became apparent. The floods reach only to the lower portion; the upper part slopes gradually up to the skirts of the stony hill, and affords a beautiful view of the double distances which buttress the riverine plain. At present the settlement consists only of the square, and the square has a total of forty-five tenements, not including the church. At present it supports itself by exporting provisions, and it

* In the true cattle-breeding countries, such as Texas and the Argentine Republics, a few head turned out to graze and completely neglected multiply exceedingly in the shortest possible space. Here, as in the southern part of the São Paulo Province, they do not, and the cause is hardly apparent. The climate is excellent, and

the surface of the ground is favourable, while forage, possibly not of the best description, abounds. On the other hand the animals cannot live without salt, and want of communication, by adding 400 to 500 per cent. to the price, greatly limits the supply.

imports from Joazeiro salt and dry goods, and from Januaria saltpetre, hides, and sole leather. The post reaches it twice a month, on the 7th and the 27th.

The vicar, Rev. P^e Francisco da Motta, was confessing at Desembrigo; I was sorry not to meet him, as all spoke highly of his local information. The excellent Delegate insisted upon giving us coffee and sponge cake (pão de ló); my companion bought at his store a bit of cotton marked J. Bramley Moore; full of starch, leucom, and dextrin, it contrasted badly with the substantial home-made produce of Minas. Our friend led us to the village school, which could easily be traced by the sound. The Brazilians have facetiously described the *rivá voce* system, borrowed from the Arabs.* It should not, however, be condemned precipitately; it assists in forming pronunciation, it fixes the subject upon the memory, and it teaches abstraction of thought. My system of learning foreign tongues has long been to "read out loud," and mentally to repeat whatever is said to me. The process is tedious, but it masters the language in three months.

The fault of every old settlement in the Brazil, beginning with Rio de Janeiro, is the narrowness of the streets, and after a time it can hardly be corrected. We advised the Delegate to lay out the wide open space in regular parallelograms, with thoroughfares at least 100 yards broad, and thus to make ready for the days when, pace the manes of Sir John Shelley, tramways will become universal. We visited the church in charge of a Sacristan, born about 1796. Founded some 150 years ago, by the piety of an old philanthropist, the Rev. P^e Nicoláu Pereira de Barros, it faces the fair view to the setting sun. The stone front is pierced with three windows, a door, and what by courtesy may be called a rose light, and the material is taipa, armed with mail of broken pottery wherever the rain strikes it. The bells depend from the normal gallows outside, and of the two Sacristies one is in ruins. Inside there is an organ-loft, and the two plain wooden pulpits resemble magnified claret chests. The High Altar bears the Patroness supported by São Miguel and by Na S^a Mãe dos

* "Ouve se um concerto infernal e monotono, uma especie de canto descompassado e confuso, composto de gritos de uma modulação especial. Grita o

mestre, grita o discipulo, gritão os monitores, todos gritão, e finalmente ninguem aprende."

Homens ; it has been gilt, but I detected a bird's nest in a cosy corner. On the left are two side chapels, one of S^{to} Antonio, unfinished still, the other of Santa Anna, somewhat in the pier style of Bahia, and gilt by a devotee in the olden day, João da Rocha Guerreiro. Opposite Santa Anna is N^a S^a do Carmo in newer fashion, with pillars and capitals, the gift of Joaquim José Caetano Brandão. The fourth is completely modern, columns resting on consoles, the liberality of a Genoese, Antonio da Costa. The worst part of the Matriz was its floor ; the nave was paved with loose boards, and the sanctuary with coffins and brass tacks, forming dates and initials. The sacristy had the huge boxes de rigueur, the waterless fountain, a spout projecting from a human face, and the stool and sieve confessional.

Sr. Leandro lent me the last papers from Ouro Preto, and the Presidential annual reports, together with the original description of the São Francisco by M. Halfeld. He had travelled little, and ignored even Rio de Janeiro, yet he had collected a variety of information ; his thirst for knowledge was unlimited, and he often spent half the night in study. He was great upon the education question, and as a moderate politician he deplored the excesses to which zeal and interest led, appropriately quoting the fable of the old man, his son and the ass, to show how difficult it was to please even his own party. He wrote for me a variety of introductory letters to his friends on the Great River ; in the Brazil generally the handwriting would have charmed Lord Palmerston, but the Delegate's caligraphy was positively copper-plate. We had every reason for being grateful to Sr. Leandro, and I embrace the first opportunity of expressing to him my best acknowledgments.

CHAPTER XIV.

TO THE RAPIDS OF THE PIRAPORA.

WHAT "PIRAPORA" MEANS.—THE NAME "SÃO FRANCISCO" EXPLAINED.—A NEW CREW.—THE PIRAPORA EXAMINED.—DIAMONDS.—THE STORM AND THE "BULL'S EYE."—THE BARCA, OR YAWL.—THE "HORSE-BOAT" WANTED.—THE BARQUEIRO, OR WATERMAN OF THE RIO DE SÃO FRANCISCO.—HIS POETRY, HIS IMPROVISATION, AND HIS SUPERSTITIONS,

. . . And streams as if created for his use,
Pursue the track of his directing wand
Sinuous or straight, now rapid and now slow,
Now murmuring soft, now roaring in cascades.

Comper.

WE were strongly advised to visit the Rapids of the Pirapóra, which are said to be, after the Casca d'Anta at the beginning, and the Paulo Affonso at the end, the important feature upon the Rio de São Francisco. The word means a "fish leap,"* and is applied to places on more than one Brazilian river; it has, however, many significations. On the Tiété, in São Paulo, the people translate it "Sign of fish," making "Póra" a corruption of "Bora."† With a flush of joy I found myself upon the bosom of this glorious stream of the future, whose dimensions hereabouts average 700 feet. I had seen nothing that could be compared with it since my visit to the African Congo. In due time the banks will be levéed, the floods will be controlled, the bayous will be filled up, and the great artery will deserve to be styled a "cælo gratissimus amnis."

The author of the *Noticias do Brazil* (1589) informs us that

* Pira, or pyra, a fish, and pora, salto, a leap. Thus Colonel Accioli explains it, "lugar onde o peixe salta." The word must not be written with St. Hil. (III. ii. 213), "Piraporá."

† The dictionaries explain pyra-pora by "fish-inhabitant, a great fish which lives

in the open sea—that is to say, a whale." "Bora," contracted from "Bor véra," is a verbal desinence corresponding with the Hindostani -wala in such expressions as "Canheu-bora," which a Hindú would render "Fujne-wala."

the once numerous and now extinct tribes living near this river, the Caetés, the Tupinambas, the Tapuyas, the Tupiães, the Amorpiras, the Ubirajaras, and the Amazonas—of course there were Amazons—knew it as “O Pará,” the sea. The old Portuguese explorers went down the coast with the Romish Calendar in hand, and thus the Rio de São Francisco (de Boija) derived its name from the Jesuit saint presiding over the 10th of October.* So Varnhagen assigns the honour to the little squadron of five caravels which, commanded by João da Nova, and bearing on board as pilot the cosmographer Vespucci,† sailed from Lisbon about the middle of May, 1501. It must not be confounded with the little Rio de São Francisco in the Province of Santa Catherina, a port also described by the author of the Noticias (chap. 66); and it is as well not to suggest California by giving to it the Spanish form San Francisco, instead of the Portuguese São or San Francisco.‡ The river soon attracted the attention of those dwelling on the seaboard; like the Nile and the Congo, it floods during the dry season, and *vice versâ*—sufficient to excite, in those days, the marvel-faculty.§ Adventurers who determined to

* Thus we find the Promontory of São Roque first visited August 16; Cape St. Augustin, Aug. 28; Rio de São Miguel, Sept. 29; Rio de São Jeronymo, Sept. 30; Rio de São Francisco, Oct. 10; Rio das Virgens, Oct. 21; Rio de Santa Lusia (the Rio Doce?), Dec. 15; Cape St. Thomé, Dec. 21; São Salvador da Bahia, Dec. 25; Rio de Janeiro, Jan. 1, 1502; Angra dos Reis (Epiphany), Jan. 6; Island of S. Sebastião, Jan. 20; Rio or Porto da São Vicente (São Paulo), Jan. 21.

Frei Gaspar Madre de Deus would attribute the naming of São Vicente to the fleet of Martim Affonso de Souza, who touched there on his return from the Rio da Prata, Jan. 22, 1532. But the port is mentioned under the name of its saint in the Diary of M. Affonso's brother, Pedro Lopes de Souza, before the squadron in which he commanded a ship reached it. It is, moreover, found in the map of Ruysch, 1508 (Varnhagen, i. 425).

† Sr. Varnhagen (i. 27) ably rehabilitates the name of Amerigo Vespucci, the god-father against whom for many years America, and even Europe, have been so furiously raging. He quotes the *Phisices Compendium*: Salamantice, 1520 (eight years after Vespucci's death), “Prima est Asia, secunda Africa, et tertia Europa addenda tamen veteribus incognita

America a Vesputio invente quæ occidentum versus,” &c. Columbus did not complain of him, and the fortunate Genoese died convinced that he had discovered the Eastern portion of the “Indies,” to which Castella added the term “Western.” The historian sensibly remarks (i. 27), “And the designation of ‘West Indies’ would best perpetuate for us the work of Columbus and his genius in perseveringly working out a great idea. It will ever remind human nature of the respect due to genius, even where it greatly errs, inasmuch as these errors often lead to the discovery of truth, which in the exact sciences is reached by setting out at times from gratuitous hypotheses.”

‡ This inadvertently has been made by stranger authors from Southey to Agassiz. I know only one who has avoided it, Lieut. Netscher, “Les Hollandais au Brésil,” 1853.

§ The same is the case with the Paraguassú of the Bahian Mediterranean; in fact, with all the streams which in these latitudes rise west of the sea-fringing uplands; they flood during the dry season, and they shrink when the coast rains set in. The reason is simply that the dry season of the coast is the rainy season of the interior.

solve this great mystery, and who probably had heard of the then abundant "Brazil wood," and mines of gold and silver, ascended as far as the Great Rapids in early days. The "protomartyr" was one Sebastião Alvares, of Porto Seguro, who was sent to explore by the second governor of the captaincy of Pernambuco, Luiz de Brito de Almeida, who succeeded Duarte Coelho de Albuquerque.* After four years of travel he and his twenty men, an insufficient force, were massacred—there has been many a "Bloody Run" in these regions. Presently João Coelho de Souza ascended more than one hundred leagues above the Rapids, and published a *Rôteiro*, now curious.

Two new men were hired to guide us in the "tender" canoe, which they described as very "*violenta e banzeira*," crank and kittle. We eyed curiously the contrasts of the new stream with that which we had lately left. Here the water was of a transparent green, like the mighty Zaire; it is said to be "heavier," when drunk, than that of the Rio das Velhas; the influents, often so deeply embedded as to be now useless, were clear, especially when they drained little bayous on the sides. The water seemed to break even from the stiff clay, which was in places caving in. The *Corôas* were either mere sandbanks, lines of gravel or lumps of boulder, or clothed with the *Arindá*, which in places grows twenty feet high. Cattle, here the chief produce, made them their favourite haunts. The *barreiro*, or salt lick, cribbled the sides, but we lost the aluminous white rash which distinguished the Rio das Velhas. The banks were cut and graded into steps by the receding floods, and where not broken by "*riachos*," they were above high-water mark. In places there were heaps of decayed leaves crushed and pressed together; they formed layers often 3—4 feet deep. At noon we passed on the left bank ledges caked over with hard "*Cánga*;" water trickled from it upon the loose *Cascalho* and the felspathic clay of the São-João Mine. This is a true diamantine formation. A natural pier projected from the right side, hard clay deeply tinged with iron; and the violence of the floods was shown by a tree root, weighing at least

* Here the *Noticias para a Historia e a Geographia das Nações ultramarinas* (March 1, 1859), which has a chapter (No. 20), "On the Greatness of the Rio de São Francisco and its Sources," seems to be incorrect. Luiz de Brito de Almeida

about the end of 1573 governed the Captaincy of Bahia. D. Coelho de Albuquerque (the second Donatory, not to be confounded with Duarte Coelho the First) became in 1560, third governor of Pernambuco.

a ton, and lodged in the fork of a fig, whose gigantic limbs were distorted by the burden.

All this region is of the greatest beauty and fertility; when the Rio das Velhas shall have been opened it will become the garden of the land. On the banks were many clearings and small sugar plots, with which the owners are ready to part. Beds of melons show that the fruit has now grown to be a favourite, and will, presently, become the daily bread;* the Mangui Hibiscus and the Castor shrub here stand thirty feet, and everywhere we saw the broad-leaved Brazilian tobacco growing half wild; the people prefer to pay heavily for the gifts of Baependy and Pomba. In the patches of cultivation the women had stuck, as in Harar-land, a cow's horn on an upright stick, to keep off the evil eye—por olho da gente. Fishermen and boys appeared at times, and the negroes and negresses washed by the waterside; here there is no cause to fear the crocodile or the slaver. Before the banks were sloped cuttings of sugar-cane, ready for planting in October if the rains be early, if not in November. A fish hung lifeless, hooked to the stern of a small canoe, whose beak was the wedge-formed projection used in Africa as a handle; and the turkey buzzards were hard at work upon a dead terrapin (Kagado), which infatuated humanity in these regions will not eat.

During the ascent we hugged the left bank as closely as possible; the descent was, till struck by the storm, viâ the “fio de agua,” or mid-stream, crossing to the headlands and points round which the current swings. The distance was said to be five leagues, and if so each league must represent six and a half geographical miles.† After nearly nine hours of hard work, we doubled a wooded projection from the left bank, and sighted the Cachoeira of the Pirapora. The break is now at its worst; like most others, it is easier to pass during the rains, and the more water upon it the better.

The Pirapora differs from anything that we have yet viewed; it is a superior article in quality as well as in quantity. This is, in fact, partly a true fall, divided into two sections; but we have

* The fruit is of two kinds, the melancia, or water melon, and the melão, musk melon. The former is a great favourite with the barquemen, who seem to have its name ever in their mouths. Yet they declare that it gives them “dumb chills,”

and the same is the belief in the Southern United States: few will touch the fruit when working in the sun.

† It is about six leagues west of the Rio das Velhas.

come a long way to see a small sight, and we tremble to think what Paulo Affonso may really be. On the western bank rises a lumpy hill, the Cural da Pirapora—some day it will be built over—at whose foot is a narrow stony beach. The course of the Rio de São Francisco is here from south to north, and the rocky mass crosses it in ledges and scattered blocks, mostly disposed diagonally. There are evidently several breaks, and southwards the dark blue of the swift gliding river, backed by the light azure of the Saco Redondo range, contrast with the boiling raging flood that forms the “foreground.”

Glad to stretch our cramped limbs we landed at the Porto da Pirapora, on the right or eastern bank, and proceeded to inspect the Cachoeira from above. The path led through “Barandão,” a caricature of the Arraial da Manga; its principal features were huge seines and large fish, split, hung on gallows to sun dry. The people do not export this produce, but sell it only to passing mule troops. Finding that we did not trade, and suspecting us of being agents of Government, they were scantily civil, but they offered for purchase their refuse “desmonte”—sand without diamonds. The dogs were even more churlish than their masters. Had we had tobacco and other small matters for barter we might have been received in another way.

At first we walked over loose sand; the rest of the right bank is a flooring of rock, which probably extends far under the eastern bank. The natural course of the water is to this side, and canoes prefer it during the floods. M. Liais opines that canalization would here be easy; it is hard however to predicate this until careful piercings shall have been made. M. Halfeld proposes sluice gates, moreover, which the French authority does not consider necessary.* There is no danger of the Brazil undertaking any such work in the present generation.†

The stone platform is composed of slabs, some forty feet long, and mostly narrow; the cleavage is perpendicular with the stream

* M. Liais makes the length of the Pirapora obstacle a total of one kilometre, and the difference of level 3.55 metres. This would give a velocity of only 3 to 4 metres or yards per second.

† The estimates for opening forty leagues are as follows:—

Canalizing up the Pirapora	1,400:000 \$000
To the Cachoeira Grande	4,100:000 \$000
To the Porto das Melancias	3,200:000 \$000

Total 8,700:000 \$000 say £870,000.

and the water-turned pot-holes and channels, cut a yard and more in depth, show the effect of floods. The substance is generally a hard compact gneiss (grauwacker sandstein, gris traumatico) of light purple tinge, dotted with specks of mica glistening white. We found also sandstones and impure calcaire which effervesced but little under acids. From this point we could easily distinguish the two main steps separated by about 700 yards, a length which makes the slope of the rock planes appear very gentle. The upper rapid, six feet high, seemed more formidable than the lower of about seven feet. Near the right bank these form catadupas, or true falls; they are also garnished with escadinhas (little ladders), miniature cascades in gerbs and jets, rushing furiously down small narrow tortuous channels, between the teeth of jagged stone-saws, and tumbling over dwarf buttresses. Thus the total height between the upper and the lower "smooths" is thirteen feet; above the break the stream narrows to 1800 feet, whilst below, at the Porto da Pirapóra, where the serpentine arms, after crossing and dividing between the boulders, unite, the bed broadens to 3500. During the dries the fair way, if it may so be called, is a thin sheet of water near the western bank; no ajôjo, however, can pass, canoes must be unladen and towed up, and without a good pilot there is imminent risk. At the present season it is broken by outcrops of rock, and during the floods it has dangerous whirlpools.

The Pirapóra is a serious obstacle. It is not insurmountable, but it would cost more money, and take a longer time to remove, than all the most serious obstructions upon the Rio das Velhas. No work could be carried on in the rainy season, and the inundations would damage the labour done during the dries. Hands would have to be sent here at a great expense, and even on this most wealthy soil imported provisions would be required. Above it also the Rio de São Francisco becomes a mass of rapids, and when you clear one you are within hearing of another. Canoes ascend with difficulty to the mouth of the Abaété.* M. Liais accurately surveyed as high as the embouchure of the Paraopéba, and he found that no expense would clear more than a hundred leagues of its course.

Returning to the Porto, we visited the diamond diggings, which

* Etymologically, the true man (ábá, the stream which produced the celebrated man, and été, veritable), or hero. This is diamond in 1792.

are of some antiquity; formerly gold was washed, but this industry has now ended. The gem, which comes, perhaps, from afar, is found in the Cascallo arrested by the rocks. Most probably the Caixão or hollow at the foot of each fall would yield a better supply. About a dozen men raising "desmonte" from a pot-hole (panella) between two boulders deeply channelled out by the joint action of sand, gravel, and water. For small and valueless stones they asked per vintem (two grains) from 12\$000 to 14\$000, something above the London prices.

This part of the São Francisco should be eminently diamantiferous. On the east it drains the Cerro, which we have already visited. To the west it receives the washings of the Rio Bambuhy (of old Bamboi), which falls in south of the city Dôres do Indaiá. Beyond it is the Rio Indaiá, or Andaiá, where in May, 1800, Dr. Couto's party took from one hole forty-two stones. Further north is the Ribeirão do Borrachudo, which also gave one gem; and its neighbour is the Abaété, draining the old Sertão Diamantino. These four streams, to mention no others, issue from the eastern flanks of the great chain, whose western counterlopes supply the diamonds of Bagagem. Further north is the Serra da Gamelleira and the valley of the Somno, an eastern branch of the well-known Paracatú. I will allude to these rich diamantine deposits as we pass them.

During the last night a raw south wind had set in from the mountains, and told us that rain had fallen there. It was the beginning of the wet season, but the people called the showers Chuvás da Queimada—of the bush-burning. Prairie fires are popularly said everywhere to bring down water; they sublimate a vast mass of humidity, the heat and steam rise, a cool draught supplies their place, and thus the atmosphere cannot support the condensation. In the temperate parts of North America, during the fall of the leaf, the tree-trunks restore to the ground the juices which spring injected into the wood-pores, and hence the phenomenon of streams swelling without a drop of rain. Here, however, though the dry season was just ended, the vegetation is assuming its vernal green.

As we began the descent lightning flashed from the east, the south, and presently from all the horizon, followed by low grumbings of thunder. To the right hand appeared the Olha de Boi, or bull's eye; it is not, however, the white patch under

the black arch of the African tornado. Here the sign is a little section of distant rainbow glistening in all its colours against the slaty grey background of the discharging cloud, and showing that a gale will blow up from the falling shower. Mostly we shall see it in the east, meaning therefore in the afternoon, and when it is accompanied by wind that sinks the thermometer 8° (F.), we shall expect a patter of rain, and a storm like a charge of cavalry. The people call it either simply or "com rabo de gallo"—accompanied by cirrus. Presently our cranky canoe was struck by the gale (*rajada de vento*), one of the especial dangers of the São Francisco. The east wind was heard roaring from afar; and, as it came down upon the stream, white waves rose after a few minutes, subsiding as easily when the gale had blown itself out. In July, 1867, a white squall of the shortest possible duration carried off the tiles from the roofs of Guaiculy.

Our men preferred the leeward bank upon which the blast broke, leaving the water below comparatively dead, and thus they escaped the risk of falling trees. The surface of the central channel being now blocked by the fierce wind, the side current, a backwater during our ascent, bore us swiftly down. It was very dark at 7.30 P.M., when we climbed the steep and slippery bank of the Manga. Shortly the thunder growled angrily overhead, and heavy rain fell, fortunately upon a tight roof. This was the first wet weather which we had experienced since July 21, and it began a season desolate as a fête-day in England.

At the Manga we saw for the first time the "Barca,"* which reminded my companion of the Mississippi "yawl." It has been introduced only during the last forty years; before that time all the work was done by *ajôjos* and canoes. The shape is probably taken from the Douro, but here the form is more in Dutch style, round and spoon-shaped to suit the stream; it wants also the immense Portuguese caudal fin, though by no means without a large and powerful rudder. The planks are of the best woods in the country, Cedro and Vinhatico, the keel is of Aroeira, and the huge ribs (*costellas* or *cavernas*), together with the heavy cross-pieces and gangways, are of the stout, tough Rosca. The average length may be 45 feet by 14 broad, drawing 3, 4 to 5 feet when

* Barco is the general term for large craft, whilst Barca is larger. In this point Portuguese agrees with the Italian, which makes the feminine major than the mascu-

line; for instance, "trivella," the augmentative form of "trivello." Some authorities, however, make Barca the smaller.

loaded, and carrying some 400 arrobas, reckoned by rapaduras or sugar cakes, each about 4 lbs. At Salgado was built the *N^a S^a da Conceição da Praia*, now broken up; she was 81 feet long and 6 feet in the water. These large craft are always flat-bottomed (*de prato*) to work off shoals. Keels are dangerous, as they cause upsets when the current carries them to the shallows. The bows and stern are raised, as in the old caravel, and the cargo is matted over or covered with hides in the centre, leaving a narrow trampway of plank at each side. Above the Paulo Affonso the toldo or standing awning is unwisely placed in the stern so as to catch every puff of wind. The lower riverines prefer the cabin in the bows, and diminish its dimensions. It is made in tunnel shape, resembling the surf-boats of the Guinea coast, and it is worthy of imitation by the dwellers on the upper stream. The stern-cabin, which from 8 feet long sometimes takes up a quarter of the length, is of solid planking, in the poorer sort arched and matted with fronds of the *Indaiá* or the *Carnahúba* palm, or even with common grass; the ends hang over both sides so as to carry off the rain. A rich trader assumes some fine name, as the "*Baroneza de Minas*," displays a flag with a "*Santa Maria*," and has doors and glass windows. His cabin, which is also his shop, is fitted up with shelves for goods; he comfortably swings a hammock, and he disdains to sit at table without a table-cloth.

The crew of a moderate-sized craft may be ten men, the extremes being six and fourteen. The pilot stands or sits at his rudder on the raised stern. His men, dressed in white kilts, and at times in tattered shirts, with hats of leather or straw, have hard work. Their poles, 21 to 23 feet long, are much heavier than those of the *ajôjo*, and like the Bedouin lance, require a practised hand. They also work huge oars like sweeps, one man pulling whilst another pushes. During the floods they must creep up at the rate of two leagues per diem, wearing, as they say, holes in their chests, and exposed to all the insects of the shore; hence as a rule they make only one trip per annum, and at the beginning of the rains they return home to cultivate for themselves or for others.

I was surprised at the absence of sails; they were seen at only two places, *Pilão Arcado*, and "*Joazeiro*;" and even there they were limited to ferries crossing the stream. The people declared

that the channel, besides being studded with snags, was too tortuous. This, however, is very far from being the case. They also feared sudden gusts (Pés de Vento or Redemoinhos), which would cause accidents. The chief reason is, doubtless, ignorance. On the Lower São Francisco, where the sea-breeze from the south-east sets in regularly at 9 A.M., every barca goes up under sail and at steamer pace.

The Upper São Francisco has its regular trade winds, which vary with night and day, and still more with the seasons. The east, sometimes veering towards the north, is called the Vento Geral,* and it often acts as a "soldier's wind," useful both ways. By night in the lower parts of the stream it is followed by a Terral or land-breeze from the west. Of this "vent traversier" also the barca-men declare that with canvas their boats would be driven out of the channel.† During the four rainy months, which of course are different in the different sections of the river, and which as a rule follow the southing and the northing sun, the trade shifts to south with westing, and thus blows down stream. The regularity of the meteor suits admirably not only for sailing but for all manner of simple and economical machinery.

In this portion of the Brazil, where the simplest labour-saving contrivances are unknown, they have never heard of the "horse-boat," now so common upon the streams of Continental Europe, and still used in the United States. The machinery might easily be adapted to the rafts and boats. A platform some seven feet long, and raised at an angle of 20° to 31°, faces the stern, and the animal is taught to walk up it. It is composed of some forty-two slabs, each four inches square, and the hard, unelastic woods of the country would supply the best material. Connected by vertical joints of iron, which work loosely upon one another, forming an endless band or chain, the platform is fastened to an "idler" axle in the fore flooring and aft to the transverse tree which works the paddles. This portion is made fast to strong uprights, and the diameter of the working wheel is about 3 : 1 of the axle.

* The regular east wind of the Amazons is also known as "Vento Geral" (Mr. Bates, i. 213).

† "The fault of the vessels navigating the Amazon is the breadth of beam and the want of sail. I am confident that a clipper-built vessel, sloop, or rather ketch-rigged,

with a large mainsail, topsail, topgallant-sail, and studding-sails—the last three fitted to set going up before the wind, and to strike, masts and all, so as to beat down with the current under mainsail, jib and jigger—would make good passages between Pará and Egoás" (Lieut. Herndon, 262).

Thus it would be easy to get over thirty miles per diem with a tithe of the present toil.

At the Manga I dismissed with the highest recommendations to future travellers my good old pilot, Chico Diniz and his stout-hearted companion, João Pereira. The expense was 190\$000, but on the Rio das Velhas wages are now at a fancy price; on the São Francisco there is a regular demand and supply. Joaquim volunteered to accompany me, but he was short-sighted and soft-bodied. The "Menino" agreed to remain with me on condition of being supplied with a return passage from Joazeiro. On the great stream barquemen do not leave their beat; it is the custom to engage them per travessia or trip, of which, as will be seen, there are eleven. I hired the cousins Manuel Casimiro de Oliveira and Justino Francisco da Conceição; both were very dark, and the latter, 6 feet 3 inches long, reminded me of Long Guled the Somal. They were well acquainted with the water, civil and obliging, but they lacked the pluck and bottom of the Highlander crew.

As a rule the worst hands offer themselves to the stranger, and thus he may find himself in great trouble. All men are here more or less amphibious; the canoe, as they say, is their horse. The real barqueiro is a type as peculiar as the bargee of olden days in England; he is also a free-born man; few traders like to employ slaves. More handy than a sailor with us, like the African, he is perfectly acquainted with all the small industries necessary to his comfort; he can build his house or his dug-out, and make his tiles or his clothes—arts which among the civilised demand division of labour. Thus he is mostly inferior to those of his own class in more advanced lands where society has split up into thin strata. Here, as elsewhere, it is wonderful how little foul language is used. The same has been remarked of the North American backwoodsmen, and the aborigines of both countries know, we are told, neither swearing nor abuse, "bad man" being the worst reproach. The good specimen is quiet, intelligent, tolerably hardy, and perfectly respectful to his Patrão, the proprietor or hirer of the boat. He usually eschews drink altogether, fearing the drunken quarrels to which it leads. The worst lot is rough as its own barque, and desperately addicted to strong waters and women, to the nightly Samba and Pagodi, the local "orgie." My last gang will be a good specimen of the bad.

All are headstrong, a race of "autonomoi," who will have their own way, and who do not like to be directed or contradicted. I was advised to carry plenty of spirits and tobacco to prevent them jumping ashore at every house. They have enormous appetites, which come, they say, from the shaking of the barca. This is probably an "Indian" derivation; the savages, we are told, would sacrifice everything for food, and ate with the voracity of jaguars. Although they know that it is injurious, the barqueiros delight, like the Peruvians, in rapadura or Chancaca sugar; I have seen a man eat 2 lbs. of it at a sitting. They have the usual Portuguese and tropical horror of fresh milk; on the other hand, the soured form, here called Coalhada, and in Hindostan "Dahí," has a high reputation; it certainly is antibilious. The rest of the diet is Jacúba, which has been before mentioned, sun-dried meat, water melons, and beans* with lard. Almost all smoke, a few take snuff, and very few chew.

A characteristic of the barqueiro is his aptitude for mild slanging and chaffing, the latter being a practice abhorrent to the Brazilian mind in general. "O Senhor e muito caçador"—a great joker—means that you are not pleasant. He has also the habit of the Hindu palanquin-bearer carrying a "griffin," and will, if impudent, extemporise songs about his patron. The language renders the rhyme easy, but the stranger is astonished by the facility with which men and women squatting on their heels† answer one another in Amabæan verse, made without a moment's thought. Although we have had an Ettrick Shepherd, many deride the pastorals wherein the swains prefer poetry to prose. They should hear the barqueiro of the São Francisco River capping verses with his "young woman," and making songs about everything in general. Similarly the opera is held to be fictitious and unreal because emotions and passions are expressed in music; but the negroes of Central Africa show by chaunting when their sorrow is deepest, and the South American Botocudos evince excitement by singing instead of speaking. "Ils ne parlent plus; ils chantent," says the traveller.

* This is an excellent food, not only for cattle (70 per cent. of nourishment to 60 of oats). The principal species of these Papilionacæ are Feijão Preto (*Phaseolus derasus*), Feijão Carrapato (*P. tumidus* and *sphaericus*), and Feijão Mulatinho (*P. vul-*

garis). There are many others.

† This position is usual in the wild parts of the Brazil. The eye familiar with it in Eastern lands is struck by it when the squatter wears the garb of the West.

Naturally the subject matter is mostly amorous. The barqueiro delights in screaming "a largas guelas," at the top of his voice, some such verse as

Hontem ví uma dama
Por meu respeito chorar.

He eternally praises the *Côr de Canella* or *brunette* of these regions, and he is severe upon those of the sex who dare to deceive the poor mule-trooper or boatman.

Mulher que engana tropeiro
Merece couro dobrado
Coitadinho tropeiro coitado ! (chorus).

He thus directs *Mariquinha* to put the kettle on :—

Bota o frango na panella
Quanda vejo cousa boa
Não posso deixar perder.

O Pilota (chorus).

Some of the songs still haunt my ears, especially one which much resembled "Sam 'All." The more and the louder they sing the better for the journey; it seems to revive them as the bell does the mule.

The superstitions of the barqueiro are as numerous as his chaunts. He believes firmly in the *Duende* or *Goayajára*, wizard and witch, the *Lobishomem* or *loup-garou* of Portugal, the *Angai*, the *Anhanga*,* the *Alma* or ghost, the *Esqueleto* or skeleton apparition, the *Gallo Preto*, or bad priest turned into a black cock, and the *Capetinha* or imp. They have curious tales about the *Cavallo de Agua* and other fabulous animals. This beast is the size of a small colt, round-hoofed, red-haired, and fond of browsing on the banks. The "Menino" declares that he saw it in a *poção* or kieve below the *Cachoeira dos Geraes* in the *Rio das*

* *Angai* in the "Tesoro de la lingua guarani" is translated "the evil spirit," also called *Giopary*, *Jurupari*, and *Jerupari*. I presume that it was really applied to that injured man or to some ghost that had made itself notoriously unpopular. *Anhanga* is Anglicised "phantom" (*phantasma*) from "anho," alive, and "anga," ghost, soul, spirit: thus it means soul only—soul without body. Of course, "soul" and "spirit" are civilised terms

applied to a barbarous idea. They denote subjectivities which may be reduced to the totality of central and nervous action. The *Alma* is like Dr. Johnson's, or rather Mr. Cave's "ghost"—"something of a shadowy being." *Nobrega* and *Anchieta* wrote *Anhanga*, *Yves D'Evreux*, *Aignan*, *Barrière*, *Anaanh*; and other forms used upon the Continent and the Islands are *Uracan* (hurricane?), *Hyorocan*, *Amignao*, and *Amignan* (F. Denis).

Velhas, and that a youth fired at it. Perhaps it may be the Lamantin, so well known in the Amazonas waters, but I am not aware that the Peixe boi (*Manatus Amazonicus*) has been found here. The Cachorrinha d'Agua or water-pup has a white coat and a golden star upon the forehead; whoever sees it will command all the gifts of fortune. The Minhocão or large worm, the Midgard, the Great Sea Serpent, the Dabbat-el-Arz of the Arabs, plays a part as important as the Dragon in China. It is 120 feet long by 2 in diameter, barrel shaped, scaleless, bronze-coloured, and provided with a very small mustached mouth. The Minhocão is a perfect "Worm of Wantley" in point of anthropophagy. St. Hilaire (III. ii. 133) heard of it in the Lagôa Feia of Goyaz. At first he believed it to be the *Gymnotus Carapa*, then a gigantic *Lepidosiren*. Col. Accioli (p. 8) holds it to be an extinct monster. Castelnau (ii. 53) speaks of it in the Araguaya. It was 30 to 40 metres in length, and the terrible voice resounded for many leagues. Halfeld (*Relatorio*, 119) mentions that his men mistook for it a tree trunk, and thinks it fabulous. Farther down we shall pass a part of the bank which has been injured by the Big Worm, and many educated men have not made up their minds upon the subject. The superstition is evidently of "Indian" origin.*

All these legends have a taint of the Tupy, grotesque savage who best adorned his person by spreading upon a coat of gum the hashed plumery of gaudy birds, in fact who invented tarring and feathering by applying it to himself; *experimentum in corpore vili*. Classical, and worthy to rank with the Sea Fairy Tales, however, is the Mãe d'Agua, a spirit, a naiad, a mermaid who aspires to be a mer-matron, and who inhabits the depths of Brazilian rivers. Of perfect form, utterly disdainful of the fish-tail, and clothed only in hair glittering like threads of gold, she is also a siren. Her eyes exercise irresistible fascination, and none can withstand the attraction of her voice. She is fond of boys, like most of her sex, when arrived at a certain age, and she seduces beautiful boatmen. Unlike the churlish Undines and Melusines

* Thus Lieut. Herndon (Chapter 8), speaking of the Lake Country of the Upper Amazons, remarks, "Many of these lakes are, according to the traditions of the Indians, guarded by an immense serpent, which is able to raise such a tempest in the lake as to swamp their canoes, when it immediately swallows the people. It is

called in the Lengua Inga (Inca), 'Yacu Mama,' or mother of the waters; and the Indians never enter a lake with which they are not familiar that they do not set up an obstreperous clamour with their horns, which the snake is said to answer, thus giving them warning of its presence."

of Europe, when she proposes a change, she dismisses her lovers with great wealth. Gonçalves Dias, the poet, has made of her a malevolent pixy, a Lurelei, whose object is to drown youth; but he takes away none of her charms.

Olha a bella creatura
Que dentro d'agua se vê!

CHAPTER XV.

THE RIO DE SÃO FRANCISCO.

THE SYSTEM OF THE STREAM.—ITS SOURCE.—DIRECTION.—LENGTH.—MAGNITUDE.—GEOLOGY.—GLAZED ROCKS.—IRON DEPOSITS.—WEALTH OF VALLEY.—THE RIVER CONSIDERED IN CONNECTION WITH COLONISATION, AND AS A LINE OF COMMUNICATION.—THE RIVERS OF THE BRAZIL GENERALLY.—DEPLORABLE NEGLECT OF WATER COMMUNICATION.—RIVERS VERSUS RAILWAYS.—THE RIO DAS VELHAS PREFERABLE TO THE UPPER SÃO FRANCISCO.—ESTIMATES FOR CLEARING THE RIO DAS VELHAS, BY M. LIAIS.—ESTIMATES FOR CLEARING THE RIO DE SÃO FRANCISCO BY M. HALFELD.—ESTIMATES OF M. DE LA MARTINIÈRE.—THE AUTHOR'S OWN ESTIMATES.—STEAM NAVIGATION ON THE RIO DAS VELHAS BEGUN BY M. H. DUMONT.—STEAM NAVIGATION ON THE RIO DE SÃO FRANCISCO BY THE COUNCILLOR MANOEL PINTO DE SOUZA DANTAS.—CREATION OF NEW PROVINCE ON THE SÃO FRANCISCO RIVER.—GENERAL VIEW OF THE GREAT LINE OF COMMUNICATION.—ITS BENEFITS TO THE EMPIRE.

“One of the best gifts of nature, in so grand a channel of communication, seems here wilfully thrown away.”—*Darwin, Naturalist's Voyage*, Chap. vii.

LIEUTENANT MAURY is undoubtedly correct when he remarks that the valleys of the Amazons and the Mississippi are commercial complements of each other, one supplying what the other lacks in the great commercial round. The geographical homology of the riverine formations in the Northern and Southern divisions has also been remarked by many writers. The Amazons represents the comparatively diminutive Laurentian system.* The Rio de la Plata is the Mississippi, the Paraguay is the Missouri, and the Paraná is the Ohio, whilst the Pilcomayo, the Bermejo, and the Salado are the Plata, the Arkansas, and the Red River.

The Rio de São Francisco has been trivially compared with the Mississippi and with the Nile. It presents an analogy with

* The valleys of the Amazons and the Paraguay Rivers can easily be connected like those of the St. Lawrence and the Mississippi.

the African Niger, but none with those of North America. One of many, it rises in the South, flows to the North with easting, and near the end of its course it bends eastwards and disembogues into the Atlantic. It is the external segment of sundry similar sections of circles, bounded by basins draining north to the Amazons, and west and south-west to the Parana-Plata: the included arcs are the great Jequitinhonha and the Doce rivers. Further South is the Parahyba do Sul, and South again the Ribeira de Iguape.* Except the latter all these streams burst through the barriers which more or less developed subtend this part of the South American, as they do the corresponding portion of the African, seaboard.

The oldest traditions (Noticias do Brazil, 1589) derived from the savages, make the São Francisco rise in a "great and famous lake which it would be very desirable to discover." Luccock (p. 530) remarks, "in the St. Francisco and the Paraná we beheld the drains of an immense internal lake, bounded on the east by the Serros Frio and Mantiqueira, on the south by that of Maracanã, and on the west by those which separate the Paraná from the Paraguay, or lie beyond those streams. The waters of this ancient elevated sea have burst their barriers in S. lat. 15° and 20°, and are still wearing their channels deeper at the Falls of Pirapóra in the north, and Setequeadas in the south; just as the Lakes Erie and Ontario, in North America, will, in all probability, be drained by wearing away the impediments which now form the Falls of Niagara." M. Halfeld (Relatorio, p. 108) is inclined to think that the Serras of "Ibyapába," † and the Itacutiára, Bréjo and Itacaratu, with the minor features near the Monte Escuro were of old the walls of an extensive "salt-water sea." He drains it off through the Rapids of Itaparica (317 leagues ‡) which burst and formed the great future Paulo Affonso. Salinas abound upon its line, the grits and calcareous

* This stream rises to the east or seaward side of the great Serra do Mar, which in the southern province of São Paulo bends away from the shore. The etymology is "yg," water, "cua," belt, and "ipé," a place where. I reserve the Ribeira for a future volume.

† Sr. J. de Alencar prefers to write "Ibyapaba." Vieira translates it "Terra aparada," and Martins explains it by "Iby," land, and "pabe," all. "Iby" is often corrupted: thus the name of the

celebrated Pytiguara tribe was originally Iby-tiva-cua-jara, the lords of the land-valley. According to M. Brunet, of Bahia, the height of the range does not exceed 2200 metres. Mr. Keith Johnstone has adopted Ibiapaba, and Gardner informs us that the Portuguese name is Serra Vermelha. M. Halfeld writes Hippiapaba.

‡ M. Halfeld's first league was at the Pirapora, and he places the junction of the Rio das Velhas.

marls contain an abundance of salt (chloride of sodium), and Chilian saltpetre (nitrate of soda),* and as in the Valley of the Indus the Sal da terra effloresces during the dry season. I may add that the presence of iodine would explain the absence of goître, and the fact that the cocoa-nut palm flourishes at such abnormal distances from the ocean.

The main source of the Rio de São Francisco is in the eastern versant of the Serra da Canastra, the great central platform of Minas Geraes, between S. lat. 20° and 20° 30' and W. long. 3° (Rio de Janeiro). "From the gap of a perpendicular rock more than 1000 feet high," says the Baron von Eschwege, "bursts the principal nascent of the São Francisco." The spot was visited by St. Hilaire (III. i. 184), and "tore from him a cry of admiration." He gives to the Casca d'Anta Cascade 667 feet of altitude, and he remarks "qu'on se tâche de se représenter la réunion de tout ce qui charme dans la Nature; le plus beau ciel, des roches élevés, une cascade majestueuse, les eaux les plus limpides, la verdure la plus fraîche, enfin des bois vierges qui présentent toutes les formes de la végétation des tropiques."

The waters of the young river sweep from west to east for a distance of about fifty-five and a half leagues, and are mere mountain torrents. Before receiving the Paraopéba the breadth of the united stream is 140 metres, and the maximum depth 3·25 metres, with a discharge of 130 cubic metres per second. The direction is then from south to north with the Serra Grande or Espinhaço on the east, and the Mata da Corda forming the western wall. From the Paraopéba to the Pirapora Rapids the line has been surveyed, it inclines at first to the west and then to the east, the distance being forty and four-fifths geographical leagues (226,845 metres). From the Pirapora to the Cachoeira do Sobradinho, a distance of 239—240 leagues, the whole line is ready for a steamer, and including the Rio das Velhas, a total of 508 leagues can be made transitable with little difficulty. Below the Sobradinho there are twenty-nine clear leagues, followed by forty-four which, though dangerous, are transitable to rafts and canoes. From Varzêa Redonda, twenty-five to twenty-six leagues are unnavigable, and in this section occur the Great Rapids of

* See Chap. 19, where the nitrate of potassa will be mentioned.

Paulo Affonso. Finally, below the line of rapids, forty-two leagues, upon which steamers now ply, connect the Lower Rio de São Francisco with the ocean. It is here unnecessary to enter into details of direction * or distance, as we shall float down the whole way.

The *Annuaire du Bureau des Longitudes de France* assigns to the São Francisco the fourth rank amongst the streams of South America. It follows the Amazons (5400 kilometres †), until lately held to be by far the largest river in the world; ‡ the Paraná-Plata (3440 ks.) and the Tocantins (2300). But M. Liais has shown that the São Francisco has been wrongly assumed to represent 2100 kilometres: from its source to the mouth of the Rio das Velhas is 800 kilometres, and 2100 from that point to the sea: the total, therefore, will be 2900. § Thus the cosmic rank of our stream will be seventeen or eighteen. || In Europe it is surpassed only by the Volga; in Asia by the Yenissei, the Yang-tse-Kiang, the Hoang-ho, the Oby, the Lena, the Amour, and the Meï-Kong; in Africa by the Nile, the Niger, the Zam-

* We may briefly remark that it runs north, with a little westing as far as the Urucuia R. (30th league from the mouth of the Rio das Velhas), north-north-east to the Bom Jesus da Lapa (106th league); north, with a little westing to the Villa da Barra (162nd league). This meridional course is pleasant to the traveller, who always regrets when he must east or west, and thus catch the sun. Then begins the long north-eastern bend, whose apex is Cabrobó or Quebobó (278th league). Thence the stream curves to the south-south-east, and finally to the south-east.

† Lieutenant Herndon assigns to the Ucayali-Amazon an uninterrupted navigation of 3360 miles. He estimates in round numbers the fluvial lines of the valley for large vessels at about 6000 miles, and he supposes that, including the numerous small streams, the length would swell to 10,000 (p. 280).

‡ The Nile is rapidly rising in point of length. My friend Mr. A. G. Findlay, the geographer, says (June 3, 1867)—“If the source be near the Muxinga Range . . . the total course will be 3500 geographic or 4050 British miles, almost unparalleled by any other river.”

§ Professor D. T. Ansted (p. 34, *Elementary Course of Geology, Mineralogy and Physical Geography*) gives the São Francisco a total

direct length of 1000 British statute miles; and of 1600, including windings, whilst he sets down the area of drainage at 250,000 square miles. Sir John Herschel (*Physical Geography*, p. 188) says—“The basin of the San Francisco includes the district (?) of Minas Geraes, the great source of the mineral wealth of Brazil. It includes an area of 187,200 square geographical miles in length to its source in the Sierra da Matta da Corda (?).” It is regrettable when any but professed geographers write geography. Mr. Gerber makes the total of the two hydrographic basins in the Province of Minas to contain 20,000 square leagues (180,000 square geographical miles), and amongst these he places first the São Francisco, to which he assigns 8800 square leagues, or 79,200 square geographical miles.

|| M. Liais assigns to it the 16th place. But at present it is very difficult to calculate the area of the Zambesi and the Congo Rivers. Assuming the former to rise in E. long. 16° and to debouch in E. long. 36° (and to extend between lat. 8° and 18°), with the mean length of a degree of 58.472, we have a greater direct course than the São Francisco. The Congo is not to be estimated in the present state of geographical knowledge: it will probably prove itself equal to the Niger.

besi (?) and the Congo (?); in America by the Amazons, the Mississippi, the Paran -Plata, the St. Louis, St. Lawrence, and the Mackenzie.

A late expedition has decided that the basins of the Piauhy and the Amazons are identical, and that both are like the Mississippi, cretaceous formations. Neither Professor Agassiz nor Mr. Orestes St. John found marine deposits, but these may have escaped the notice of a flying survey. They judged that both were of fresh-water origin. During the cosmic winter the glaciers had moved down to the valleys, without, however, ploughing their soles, or leaving those "glacial inscriptions," furrows, stri , and burnishings which characterise ice-action. When the frozen masses were raised by thaws, the triturations were deposited at the bottom, and now form the underlying distinctly stratified sandstones and the loose sands. Upon these rest the clay formations, laminated, stratified, cross-stratified, and unstratified, with lines and waves of coarse gravel and pebbles, whose material is quartz, often highly ferruginous. Capping the whole is the sandy and once pasty clay, red with ochre, and common to the Brazil and intertropical Africa. It overspreads the undulating surface of denuded sandstone, following all its inequalities, and filling up its furrows and depressions. The breaking up of the geological winter, and the final disappearance of the ice, formed a vast fresh-water lake. This, after a somewhat complicated history, finally burst its seaward dyke, effected denudation on a gigantic scale, and wore the land down to its rock-core, except where the strata were hard enough to resist. Professor Agassiz found distinct moraines, and shows that instead of forming a Delta, the mouth of the Amazons has suffered extensively from the encroachments of the ocean. In the case of the S o Francisco the river builds up faster than the sea can destroy; and the denudation of the coast is not to be compared with that further north. Its Delta does not equal in size those of the Nile, the Niger, and the Zambesi, but it is distinctly traceable.

M. Halfeld (Relatorio, p. 172) opines that the gr s, or sandstone grit, is the characteristic formation of the Rio de S o Francisco. The stream rises, as has been seen, from the great central platform of Minas: its material is the Itacolumite or granular laminated sandstone, which seems to compose the central and

the newer portions of the continent.* Some would compare these deposits with the vast Silurian beds of North America. At present characteristic proofs are wanting. M. Chusin (Bulletin de l'Académie de Bruxelles, viii. 5) found the print of a univalve in the modern red grits of Minas Geraes. Travellers and miners, however, are both agreed that hitherto the Brazil, and even Southern America generally, resembles Africa in the difficulty of finding organised fossil bodies, and thus it is difficult to decide the geologic age of the immense grit deposits in the Eastern and Northern plateau. This Itacolumite reappears at Bom Jardim (138th league) and runs down stream alternating with coast granite.

Below the gneiss and schist of the Pirápóra, we find sand and sandstones here brown, there of a deep ochre, often highly ferruginous, rarely stratified, and more or less nodulous and porous. This formation resembles the coast "drift," and once covered continuously all the river valley; it is still superficial except where the flood-mud has accumulated upon it, and in parts it shows intervening layers of clay. It is also broken by outcrops of hard, blue mountain-limestone, and by argilliferous or hydraulic limestones, compact or stratiform, and abounding in silex.

Further down stream are close sandstones resembling ferruginous quartzite and covered with a polished crust, either chemical or mechanical. The rocks are blackened to the colour of dark coke in places where the floods have less polishing power and the presence of the mirrory glaze upon the brown, yellow or red rock, sandstone, granite and syenite, readily gave the high-water mark. In many parts it resembled magnetic iron, and I tried it upon the needle without any effect. The coating did not exceed wafer-thickness, and in places where the softer material had yielded, glazed sheets, and surfaces partially glazed, stood up detached. The people term these tinted rocks Pedras de Marumbé, evidently believing them to be ironstones. The glaze, however, is of three kinds; the darkest purple, which

* The same grit was found by Castelnau on the Tocantins River, and on his route from Goyaz to Cuyabá, in Mato Grosso. Near Santa Cruz of Minas Geraes he also mentions erratic blocks of a granite which does not exist in the neighbourhood. That traveller records the absence of fossils, and

believes that as a rule the low-lying and hot portions of the South American continent are of much older date than the Highlands offsetting from the Cordilleras, and whose formations are placed regularly as those of Europe.

appears black in the shade, another is plumbago-black (pedra negra), while the third is a warm red-yellow, probably pure ferruginous matter deposited upon boulders whose inner colour is the same (pedra cabocla).* On the São Francisco the further we went down the deeper became the tint, and the denser the glaze, till in places above and below and about the Great Rapids, the monstrous masses looked like castings of solid metal. This would suggest that it is the work of the stream, but it is difficult to decide whether the waters carried it in solution, or whether their friction had drawn it from the interior to the surface. Analyses by Berzelius and Charles König made it to consist of oxides of manganese and iron.† The specimens from the Atures proved to contain, besides oxide of manganese, carbon and super-carburetted iron, but they blackened the paper in which they were wrapped. Such is not the case here, nor do the people attribute to them any noxious influence upon the atmosphere.

The subject was, I believe, first discussed by Humboldt.‡ He found that “whenever the Orinoco, between the missions of Carichana and of Santa Barbara, periodically washes the granitic rocks, they become smooth black, and as if coated with plumbago.” On the Congo River I observed the thin shining black crust, strikingly resembling the coatings of meteoric stones, to begin at Boma, just below the narrows of the Zaire, and to extend up to the Yellalah or Great Rapids, in fact where the stream is most turbulent. Here it was first observed by the expedition of 1816 under Captain Tuckey, and the specimens were described by M. König.§ In 1832 Mr. Darwin found near Bahia, where a rivulet entered the sea, and where the surf and tidal waves supply the polishing power of cataracts, coatings of a rich brown like those of the São Francisco, and he justly remarks that “hand specimens fail to give a just idea of these burnished stones which glitter in the sun’s rays.” He could assign no

* I never heard the people say, as on the Orinoco, that “the rocks are burnt” (or carbonised) “by the rays of the sun,” or that “the rocks are black where the waters are white.”

† I have sent to Europe specimens of these curious rock-incrustations from the São Francisco River. During the few months since they were removed, the glaze has become comparatively dull, and looks as though it required renewal.

‡ Personal Narrative, vol. ii. chap. 20 : Bohn’s Scientific Library, London, 1852.

§ That geologist (Appendix to Captain Tuckey’s Expedition, No. 6) argued from the primitive rock-formations of the lower Zaire the probability that the “mountains of Pernambuco, Rio, and other adjacent parts of South America, were primevally connected with the opposite chains that traverse the plains of Congo and Loango.”

reason why these coatings of metallic oxides always remained of nearly the same thickness. During his second expedition Dr. Livingstone (chap. ii; Zambesi and its Tributaries) remarks of the rocks of the Kibrabasa Rapids, that "they were covered with a thin black glaze, as if highly polished and coated with lamp-black varnish." This was apparently deposited while the river was in flood, for it covers only those rocks which lie between the highest water-mark and a line about four feet above the lowest. This appearance has also been remarked upon the Cataracts of the Nile.*

In the river valley, running parallel with the glazed rocks, are detached hills rising abruptly from the level surface, and divided from one another by low spaces.† Some of these piers, which appear to be pinned down, as if they were segments of dykes to control the stream, and to keep it from wandering, are composed of almost pure magnetic iron;‡ we ascended several of them, and

* M. Rozière pointed out to Humboldt that the primitive rocks of the little cataracts of Syene display, like those of the Orinoco, a glossy surface of a blackish grey or almost leaden colour.

† For the first few leagues below the mouth of the Rio das Velhas, the São Francisco runs between containing walls. Thence to Urubú in the 127th league, it is bounded by the scarps of ridges which divide the secondary river-valleys. The detached hills backed by "denudation mountains" appear below Urubú.

‡ This vast iron formation is not noticed by M. J. A. Monlevade, who in 1854 addressed Sr. Diogo de Vasconcellos, then President of Minas Geraes. He declares the Province to be peculiarly adapted for the industry, having a healthy temperate climate, a vast expanse of virgin forest to supply charcoal, and waterfalls which will everywhere facilitate the application of machinery. The united deposits contain more iron than the whole of Europe, considering the richness of the gangue, which gives 76 per cent. of pure metal. It is principally martite, or magnetic ore almost always accompanied by Jacutinga, oxydulated iron, or protoxide of iron, with layers of manganese and titanium in the sandy state. The analysis by Dr. Percy of the micaceous Itaberite gives 68·08 per cent. of metal thus distributed—Sesquioxide of iron, 97·25; peroxide of manganese, 0·14; lime, 0·34; residue, silica, &c., 1·88; a trace of magnesium and no phosphoric acid: total, 99·61. Overlying the

rich ores is often Cánga, or hydrate of iron, worked in Europe by air furnaces: it is here neglected, because its yield is only from 25 to 35 per cent. There are besides huge scatters of mineral, five principal ranges lying at a mean distance of eighteen leagues east and west of one another on a line perpendicular to their trend. The richest diggings are associated with gold, which occurs for the most part in the lower hills, slopes, and valleys. The metalliferous strata strike from north-north-east to south-south-west, inclining to the east: the breadth is one-eighth to one quarter of a league, and the depth is unknown.

No. 1. Cordillera, beginning from the east, extends from near Sacramento, Municipality of Santa Barbara, Parish of Prata, crosses the Piracicava River *viã* S. Domingos and Jequitibá, covers a vast surface near the Ribeirão de Cocaes-Grande, and after twelve leagues, is lost in the forests. The land is everywhere wooded on both versants, the soil is fertile, and water abounds.

No. 2 is ten leagues long. It rises in the farm of Professor Abrêu, 3½ leagues above the village of S. Miguel, and it forms the left-hand wall of the Piracicava River. "Morro Aguado" (Agudo?), its culmination, fronts the foundry of M. Monlevade, and crosses his grounds for a whole league.

No. 3, twelve leagues long, appears in the "Capão," south of Ouro Preto, is rich to the west of that city, prolongs itself *viã* Santa Anna and Antonio Pereira, forms

I reserve a further notice. The low lands are finely laminated sands and clays with regular cleavage, where sun-burnt and air-baked, and patched with a variety of colours, white and black, blue and grey, pink and yellow, crimson and orange. The iron-dotted levels are backed by ranges of denudation mountains, which, from the stream, appear to be concave. Their smooth table tops and terraces show that they were once continuous walls, now isolated by weathering on a vast scale, and being still degraded by tropical rains and suns. The superior hardness of their ferruginous sandstone saved them from being worn down to the low alluvial levels, and the laminated formations at their base.

The great granitic formation of the coast reappeared about the 238th league, and continued with interruptions to the Rapids of Paulo Affonso, where it passed into syenite. Approaching this feature, and due south of the Araripe plateau, where Dr. Gardner found, on argillaceous ground, the stone-cased fishes of the cretaceous system, the end of the secondary epoch, appeared signs of a remarkable correspondence with the Amazons. On both sides of the river were arenaceous buttresses suggesting gault. The coarser materials had invariably settled in the lowest levels, and above were the fine grits known to the people as "Pedras de Amolar," or whetstones. In this part he found agates and an abundance of flint, with the coticular sandstone re-occurring about Paulo Affonso and the Porto das Piranhas. On the lower S. Francisco, after passing the rapids, about Talhado (332nd league) in Alagôas, I saw the same sandstone overlying granite and underlying limestone. Near the town of Propiá (367th league) there is an outcrop of lime, and extensive deposits of modern calcaire are met with on the lower courses of the short broad streams which cut the coast line.

the Morro d'Agua Quente and the cross chain of the Caráça, and is lost opposite the mine of the Guarda Mór Innocencio.

No. 4, twenty leagues long, begins at the south of the Caráça half a league from Capanema, and extending north *viã* Cachocira Morro Vermelho, Roça (Rossa) Grande, Gongo Soco, Cocaes, Brucutú, and the Serra da Conceição, forms the peak of the Northern Itabira.

No. 5, eighteen leagues long, begins south of Itabira do Campo, which is composed of pure oxide of iron, accompanies

the great Cordillera to Curral d'El-Rei, crosses the Rio das Velhas at Sabará, forms the Piedade Range, and probably reappears far north at Gaspar Rodrigues, Candonga, in the Serra Negra and in the Grão Mogor—all places very rich in iron.

Evidently, says M. Monlevade, it wants nothing but roads, which will save 7 \$ 000 out of 8 \$ 000, and an import duty on foreign iron of 25 per cent. A few model establishments would soon give an impetus to the trade.

St. Hilaire (I. ii., 14), when describing the course of the São Francisco, had remarked, “La rive gauche, plus élevée que la droite, est généralement moins exposée aux débordemens.” Col. Accioli (p. 14) seems to confirm this observation, which was probably only local. The great river, however, flows on a meridian, and the result of the compound motion produced by its northern course and the earth’s revolution from west to east, tends theoretically to withdraw the weight of water from the left or western side, and to throw it against the right or eastern. Thus it has been remarked, that on long lines of railways running north and south, the wear is on the eastern rail. Practically I did not find that this theory, which has been extensively discussed in Russia, affected the São Francisco.

This stream is not a “holy river,” *caret quia vate sacro*, but its future will be more honorable than the past of the Ganges or the Indus. The valley and the high dry Geraes which limit it on both sides contain all the elements of prosperity required by an empire. The population is now calculated at 1,500,000 to 2,000,000, probably nearer the latter than the former, and it can support 20,000,000 of souls. As was said of the Upper Amazon, “here the sugar-cane and the pine-apple may be seen growing by a spectator, standing in the barley-field and the potato patch.” The uplands can breed in any quantities black cattle, horses, mules, sheep, pigs and goats, while there will be no difficulty in acclimatising the camel. Of mineral wealth, besides diamonds and opals (?), agates, gold and iron, we find mentioned by M. E. de la Martinière* and others, platina, argentiferous galena, mercury, copper (near the Sete Lagóas), antimony, arsenic, manganese, cobalt and various pyrites. Salt and saltpetre, sulphur and alum have been found in large deposits. Of building materials we notice marble, freestone and slate, lime generally dispersed and hydraulic cement; silex, grindstones and potter’s-clay are also abundant. The land is admirably fitted for the silk-worm, and for the cultivation of cotton, which will some day rival its immense fisheries. † The basin of the São Francisco is terres-

* Official Letter. Annexe N. to Presidential Relation of 1867.

† The names of the fish not occurring in the following pages, but mentioned by M. Halfeld, and referred to by the people, are:—The scaly :

1. Camurupim (?), short and thickset.

2. Camurim, mirim, and assú (large and small), white with dark stripes on both sides.

3. Tubarana, dourada (yellow), and branca, a large fish, lean up-stream, but much admired below the rapids.

4. Bagre de Ouro.(?)

trial not aquatic, and it is completely isolated by cataracts near the source and above the mouth. The fishes, therefore, which have Amazonian names will probably be found to be distinct. The localisation of species lately found, even to a greater extent than he expected, by Professor Agassiz, who remarked that the main artery of the great northern basin was broken up into distinct families, will be the case here. The riverines, who have never attempted classification, or distribution, or limitation, can generally tell whether a fish is or is not caught below certain grounds. The naturalist who shall attempt the ichthyology of the São Francisco will have before him the task of years. The stupendous results obtained by Professor Agassiz, the revolution of ichthyology of which he speaks, were effected by an immense collaboration, public and private, as far as collection extends. That savant may be said to have been assisted by the forces of the empire.

The hop, and to a certain extent the vine, will flourish. Amongst the cereals it produces a wealth of maize and rice, whilst barley, rye, and probably wheat, will succeed in the Geraes. Most of the fruits and vegetables that belong to the sub-tropical and the temperate regions may be introduced. A sugar plantation lasts ten years, although the cane is most inefficiently treated. Coffee grows admirably; tea, congonghas (or maté), and the favourite of North-Western Brazil, the guaraná (*Paullinia sorbites*) will succeed in low, hot, humid spots. The tobacco is some of the best in the Empire: salsaparilla and cochineal-cactus, aloes

5. Robalo, a kind of pike common in the streams of the Brazil.

6. Pacamon and Pacamon de Couro, which, says M. Halfeld, is a soft fish that lives in mud. Gardner describes the Pocomó as an ugly black fish, about two feet long and covered with hard scales; it keeps near the bottom, is easily netted, and makes good bait, but is rarely eaten. The Pacamon of the Amazons is described as of a bright canary colour, and weighing 10 lbs.

7. Sardinha.

8. Sarapó.

9. Sibeirá or Aragú.

10. Cará.

11. Pirampeba, white and black, a small flat fish with teeth like needles.

12. Lombardia, about one foot long.

13. Sudiá.

The smooth-skinned are—

1. Niquim.

2. Cumbá.

3. Prepetinga.

I heard also of the Tamburé, about one foot long and held to be good eating, and the Piguri and Lanbari, small fishes from which oil is extracted, on the Upper Paraguay River. The Shark (*Tubarão*, *Squalus tubero*, Linn.) has carried off people near the mouth, and they speak of another large fish, the “Meru,” probably a *Squalus*, which some say is anthropophagous, and others not: it is also found at the mouths of the short disconnected tidal rivers which drain into the east coast. Of course the Manatu or Sea-Cow, that representative of the *Dinotherium*, and the Porpoise of the Amazons, are wanting in the upper waters of the São Francisco.

and vanilla grow wild. The lumber trade is susceptible of a vast development; the Aroeira, the Braúna, the Candêa, the Peroba, the Canella, and the fine hard-woods of the Brazil generally, await exploitation. Oil-plants and tanning barks, basts and fibres, drugs and gums, as the Jetahy-copal, the Balm of Peru, the Copahyba and the Asafœtida, are yielded in abundance, and the same may be said of beeswax and of the Carnaúba wax, which is converted into candles at Rio de Janeiro. The dyes are abundant, from indigo to the Páu Amarello, and of cabinet woods a long list is headed by the Jacarandá and the Brazilian cedar. In the presence of such vast and unexploited wealth awaiting the distressed classes of Europe we may exclaim with Goethe, "Who says there is nothing for the poor and vile save poverty and crime?"

We will now consider the Rio de São Francisco in another most important light, as a line of communication linking the maritime and sub-maritime regions with the Far West, the north with the south, facilitating commerce and colonization, obviating scarcity by giving an issue to the surplus of the central regions, especially when the irregular seasons of the coast injure agriculture, or when the seaboard may be blockaded. And thus will be completed the strategic circle which the Empire, if it would preserve its integrity, now greatly needs. I may here premise that the streams of the Brazil between the Amazons and the Plata are, like those of the great African peninsula, to be distributed under two heads. The many are short and direct, rather estuaries than rivers, surface-draining the ranges which subtend the coast. The few are the long and indirect, like the São Francisco and the included arcs before specified. The former are of limited value, the latter may be extensively utilized.

The Brazil is emphatically the land of great, but as yet "unimproved," rivers. They have, however, gained for themselves a bad name;* and water communication has been deplorably neglected as in British India. Capital for railways being pro-

* I came to the Brazil prepared to believe and to regret with Mr. Kidder that, "notwithstanding the number and vastness of the rivers flowing through the northern and western portions of the Empire, and finally mingling their waters with the Amazon and the La Plata, there is not one, besides the Amazon, emptying

into the Atlantic along the whole Brazilian coast, which is navigable any considerable way from its mouth inland." But actual inspection soon showed that the lower beds of many streams can be joined by short railways with the upper lines, which are naturally adapted for communication, and which have been completely passed over.

curable at heavy interest from England, the various modes of communication have been performed in the reverse order of their merit. Water communication, a vast and economic power, which should have been first undertaken, will be the last; roads have been limited to the use of the mule or the pack-bullock; and the Empire is threatened with a railway system of marvellous ineptitude. In Europe, Italy is perhaps the only country which prospected before breaking its ground. Here the want of a Topographical Commission on a large scale has made the Pernambuco threaten to run into the Bahian Railway at Joazeiro, and the D. Pedro Segundo cut across the Mauá line, and prepare a campaign against the Cantagallo and the Santos and Jundiahy. I shall reserve this important subject for future consideration.

Communication by the Valley of the São Francisco is still in embryo. Dr. Mello Franco, Imperial Deputy, drew attention about 1851 to the importance of the Rio das Velhas. As has been seen, this stream drains the northern versant of the Minas Plateau, whose culminating point is the Itacolumi. Its eastern valley wall is the Serra Grande or do Espinhaço; and westward it is divided by a long spine of many names from the Valley of the São Francisco. More tortuous than the latter, its declivity, as far as the junction, is less, being an average slope of $0^m\cdot3941$ per kilometre, to $0\cdot4890$. During the months of high water the whole river is naturally navigable, and exceptional rises would be dangerous for only a few days. In March, 1852, a respectable Portuguese trader, Manuel Joaquim Gonzalez, whom I met at Januaria, floated down the Rio das Velhas with three ajôjos, of which one was lost. In 1862, when the Councillor José Bento da Cunha Figueirado was President of Minas, the Imperial Government ordered a survey under M. Liais and two assistants, Lt. Eduardo José de Moraes and Sr. Ladislao de Souza Mello Netto; and their admirable plans of the Rio das Velhas and the Upper São Francisco are now well known to Europe.

This Commission preferred the Rio das Velhas as the line of communication with the Empire, and apparently for the best reasons.* The opening of the Upper Rio de São Francisco

* Thus the riverines truly observe "O Rio de São Francisco faz barra (falls into) o Rio das Velhas." The discharge of the former at the confluence is 446 cubic metres per second, of the latter only 209.

But these proportions do not last long. At the Porto das Andorinhas, sixty-two leagues above the junction, the debit of the São Francisco is but fifty-nine cubic metres, and the Rio das Velhas has the same

would be a gigantic work for which the country is not yet prepared ; the Pirapóra Rapids alone would cost more to remove than all the most important obstacles on the Rio das Velhas. In the thirty-four leagues above this point, the São Francisco has as many "Cachoeiras" as the whole of its rival between Sabará and its mouth. The ridges traversing the latter are mostly friable and shaly ; the bars rarely exceed six to seven yards at the summit, whilst many obstacles are merely detached rocks or sand-bars. In the former the material is of the hardest gneiss and sandstone, and spread out horizontally sometimes forty to fifty metres. For a description of other obstacles, such as the nine terrible leagues, so fatal to human life, about the Porto dos Passarinhos, the reader will refer to M. Liais. Trade, moreover, has preferred the former between the mouth of the Paraopéba River ; from above the confluence hardly a dozen ajôjos descend per annum, whilst many boatmen, fearing for their lives, refuse to hire themselves. The small towns are sparsely scattered ; and during the rains, when Carneiradas drive the inhabitants into the interior, the banks are almost deserted.*

On the other hand, it has been shown that a meridian, with a small deviation, connects the metropolis of the Empire with the line of the Rio das Velhas. Sabará is only sixty-four direct leagues from Rio de Janeiro ; the analogous point on the S. Francisco would be ninety leagues—a weighty consideration when looking to a Railway. This proximity, combined with superiority of climate, will recommend it to colonists. Finally, it is connected with more important places, such as Diamantina and Curvello.

M. Liais also decides, I believe rightly, in preferring water to land communications. Here again, as in British India, village intercommunication has found no place in the system of public works. "Nature's roads," the vilest paths made by the foot, and never bearing the impression of the cart-wheel, run down both banks of the Rio das Velhas and the São Francisco. Both are bad, but usually one is worse than the other. . Even in the dry season the canoe is preferred, and during the rains these lines are inevitably closed. There would be great difficulties in

volume at 111 leagues from its embouchure. The reason is that the former receives more affluents in the lower, the latter in the upper course.

* All agree upon the subject of these fevers, yet the plane of the Upper São Francisco is higher than that of the Rio das Velhas.

making, and even greater in preserving, a rolling road ; and the expense from Sabará to Joazeiro (244 leagues) would not be less than 12,200:000\$000 (say £1,220,000), whilst the high tolls would do away with all the benefit. A similar objection would apply to tow-paths for tracking boats.

M. Liais divides the obstacles of the Rio das Velhas into five varieties—stone-piers or detached rocks ; whirlpools, with vertical axes ; sand-bars and shallow sharp curves, snags and timber encumbering the bed. While greatly admiring his plans, I cannot agree with his system intended “*pour assainir la rivière :*” he wants to make of this wild stream a Seine or a Rhone ; and my experience of India and the United States suggests far more attention to economy. He is too fond of mines and blasting applied to soft stone, of “*suppressing*” boulder-piers, or marking every rock, and even shoal, where an accident can happen. Here “*un petit travail de canalization*” is no joke, yet he would suppress channels ; to prevent “*échouage,*” alter the stream-bed ; change its direction, rectify every abrupt *détour*, and canalize even the shallows : doubtless the first flood would restore the “*status quo ante.*” Often, too, he would obstruct one half of the channel and canalize the other, a precarious work. I have alluded to his plans of *draguage* and *tunage*, either simple or “*avec enrochements ;*” the removal of the Rapids will render these costly works useless by increasing the current, and by narrowing the bed where it spreads out in the dry season. He wishes to “*nettoyer*” the stream of floating wood, which of course will stick where it has stood. To obviate the deposit of sands from the gold washings of and about Sabará, he would compel proprietors to dig tanks, through which the muddy streams would pass and deposit their burdens before entering the river. But in the present condition of the Brazil such precautions would be impossible ; nor would the profits derived from gold-digging enable, as he supposes, mine-owners to make the necessary disbursements. He would establish a water-police to prevent trees being thrown into the stream ; the policemen would probably be the first to throw them. Finally, the key-note of his estimates is that the channel should be made independent of pilots, and offer no risk even to a mismanaged steamer. I need hardly characterize these as works of supererogation.*

* The Brazil is already but too well inclined towards “*monumental works.*” “*Les ouvriers Mineiros,*” says St. Hil. (I. i. 394) “*s'ils mettent de la lenteur*

A considerable portion of the labour could be carried on only at dead low water—that is to say, for three or four months in the year. Half water would suffice for another part. During the floods (enchentes) from November to March nothing could be done. About April there is often a small inundation called Enchente de Paschoa, which would limit the season to six months. Thus the swelling of the S. Francisco system is almost synchronous with that of the Amazons, which begins in November, and lasts till May or June, the greater extent of time being the result of its superior dimensions. Both streams have the preliminary freshets, which will presently be described; and in both the oscillations are known by the name of “repiquete.” During the retiring of the waters (vasantes) sickness must be expected amongst unacclimatized workmen seduced from distant parts by a rise of wages.

The following is the estimate proposed by M. Liais :—

200:000 \$ 000	Between Sabará and Macahúbas, to admit in the dry season a vessel drawing 0 ^m ·60 (deeper draughts would require a great increase of outlay). Canalization of four places and “suppression” of rock.
1,730:000 \$ 000	Between Macahúbas and Jequitibá, draught 1 ^m ·25. Draguage, suppression of a ford, rectification of Poço Feio, and removing rocks.
195:000 \$ 000	Between Jequitiba and Paraúna. This is one of the worst sections. For same draught.
480:000 \$ 000	Between Paraúna and embouchure of the Rio das Velhas, the finest part of the course; draught 1 ^m ·50.*

Total 2,605:000 \$ 000 (say £260,000) between Sabará and the mouth, 120 leagues.

The following are the figures for opening the Upper Rio de São Francisco :—

1,400:000 \$ 000	opening the Pirapóra Rapids.
4,100:000 \$ 000	from Pirapóra to Cachoeira Grande included,
3,200:000 \$ 000	from Cachoeira Grande to Porto das Melancías.

Total 8,700:000 \$ 000 (say £870,000) between Pirapóra and the Paraopéba River, 41 leagues.

dans leur travail, au moins ils donnent beaucoup d'attention à leurs ouvrages, et je crois même qu'ils les finissent plus que ne feraient les ouvriers européens.”

* I need hardly observe that such a draught is wholly uncalled for. In 1849, according to M. Claudel, on the high Seine, empty boats drew on an average

We will now proceed to the Rio de São Francisco.

M. Halfeld has made a detailed plan rather than a map; it wants meridians, parallels, and the astronomical determination of eight or ten points before it can be considered correct. The letterpress describes every league of the stream; but as the distances are not checked by instruments, it is evident that one league must often run into the other. And as any amount of paper has been expended, it is much to be regretted that a place was not given to enlarged plans of the Rapids and the obstructed parts. This is one of the chief merits of M. Liais' publication. The German engineer, with true Teutonic industry, probably chained down the whole distance, and thus also he must have ascertained the breadth; when the stream is very wide, no figures are given. Moreover, he was engaged in this gigantic labour for the space of only two years, which would be insufficient accurately to lay down the topography of the complicated thirty-one leagues between Boa Vista (269 leagues), and Surubabe (300 leagues).

From the details of a "désobstruction," which would convert this enormous bed into a clear channel—a kind of canal—like the Rhine or the Rhone, M. Halfeld proposes a total of 1,089:000\$000 (say £108,900). A considerable portion of this expense is mere waste; removing rocks, building dams, applying fascines (which suggest the proverbial tide and pitch-fork), clearing of snags and timber, sloping banks, erecting quays and other improvements—all these may be reserved for the days when steam navigation shall have begun. I may observe that a total of 12:900\$000 (say £1290) has been devoted to the stream between Porto das Piranhas and the Villa de Piassabussú, a line upon which steamers have plied since August 1867, without expending a farthing. Strong objection must also be raised to any attempt at a canal fifty palms broad at bottom, and extending seventy-two leagues (206 geographical miles) between Boa Vista and the Porto das Piranhas, the present terminus of steam navigation. This can hardly succeed; the land is alternately sandy and stony, deeply flooded during the rains, and subject to enor-

0^m·27; on the Loire and Moselle 0^m·22. Steamers on the various streams of France and Germany drew, say MM. Mathias and Callon, between a minimum of 0^m·36 (Ville d'Orleans, on the Loire) to a maxi-

imum of 1^m·23 (Bretagne, Basse Loire). In the United States we find flat-bottomed steamers drawing 22 inches, and a metre suffices for sea-going craft.

mous evaporation in the dry season. Evidently a line of light rails will be the true system of communication.

Compared with the two preceding estimates, M. de la Martinière is economical. Their united sum for the Rio das Velhas and the Rio de São Francisco is £368,900. He reduces it to 2,000:000\$000 (say £200,000); and for this amount, besides clearing the channel, he builds bridges and workshops, boats, slips, and five tug-steamers. But he runs only between Sabará and Joazeiro. Other writers adopt the estimates of M. Liais for the désobstruction of the Rio das Velhas, adding 2,400:000\$000 (£240,000) for clearing the channel between the Sobradinho and Varzea Redonda; and 12,000:000\$000 (£1,120,000) for a road round the difficulty of Paulo Affonso. This estimate represents a total expenditure of 17,000:000\$000 (1,700,000) for a navigation of 476 leagues (1428 miles).

I will now propose my own estimates, simply premising that the plan is not professional, and that I do not intend applying to the Brazilian Government for the privilege of carrying them out:—

£55,000	for the Rio das Velhas.
40,000	to remove the Sobradinho Rapid and the obstructions above Joazeiro.
108,000	Railways and locomotives past the Great Rapids between Varzea Redonda and the Porto das Piranhas, thirty-six miles (at £3000 per mile, gauge 2 feet to 2 feet 6 inches).
<hr/>	
£203,000	

With respect to the first charge, £4000 for twenty tons of blasting powder, which, however, might possibly be made cheaper upon the spot. The machinery would amount, transport included, to £15,500—viz., two big sledge hammers, and two smaller ditto; and two picks working in slot or cradle, with a slot-joint adjustable to the piston, £1000; drags for the Rapids, £2000; and five-horse-power engine mounted on a raft, £2500; first-class steam-tug, with donkey-engines to follow and assist in working, £10,000. The wages and support of the working hands may be set down at £30,000; and the remainder for “contingencies,” which in these lands demand a large margin.

The second item I take from M. Halfeld, who proposes to

expend upon the correction of the São Francisco channel (240th league) to Joazeiro (247th) the sum of 416:320\$000 (say £41,632). This is the highest possible estimate; the work is the only absolute necessity between the Rapids of Pirapóra (league 1), and the Villa da Boa Vista (269th); and as will be seen when we reach the place, Nature is doing there her own engineering.

From the Villa da Boa Vista to the Porto das Piranhas, seventy to seventy-two leagues (216 miles), the São Francisco can hardly be called navigable. Rafts like my own, and canoes traverse even in the dry season the first thirty-four leagues between Boa Vista and Varzea Redonda, but with a thousand perils. The remaining thirty-eight leagues (114 miles) between Varzea Redonda and Porto das Piranhas are absolutely unmanageable. The minimum of railway required will be £342,000; the maximum, £648,000. If a marginal tramway be preferred, the expense will be reduced to one-half; a cart road would cost about one-third. I rejoice to hear that the Government of His Imperial Majesty has sent a well-known German engineer, M. Karl Krauss, to ascertain the levels which can connect the Lower with the Upper São Francisco.

As the great riverine valley becomes settled, the rapid drainage will tend to increase the floods and corresponding droughts. It will then be necessary to build dams on the main artery and the tributaries, solid piers projecting from either shore throwing a strong current into the centre, and creating sufficient depth of water for navigation. Thus, combined with the removal of the Cachoeiras, the lower valleys will be secured from inundations. Again, the droughts of winter can be avoided by deriving supplies from artificial lakes and reservoirs constructed on the secondary streams. This plan has been proposed for the Mississippi, whose area of drainage is a million and a quarter of square miles, and whose navigable lines are ten thousand miles. Such bold and magnificent schemes have been proposed and partly carried out in the New World,* whilst the engineers of Europe have had a chronic fear of "meddling" with great rivers, and have propounded the theory that these were made to make canals. It is only a question of time when the Brazil will follow the example of the United States.

* Ellet "On the Ohio and Mississippi Rivers," Philadelphia, 1853.

Steam exploitation of the Rio das Velhas is upon the point of commencing. On June 25, 1867, the President of Minas Geraes, Councillor Joaquim Saldanha Marinho, entered into a contract with Sr. Henrique Dumont, C.E. The Provincial Government bound itself to pay before June 30, 1867, the sum of 4:000\$000 (£400); before July 15, 33:000\$000 (£3300); 19:000\$000 (£1900), when a tug-steamer of not less than twenty-five horse power should reach Rio de Janeiro, and make up a total of 75:500\$000 (£7550) after the vessel's first satisfactory trial-trip. Counting from June 25, 1869, the engineer was to have for ten years the use of the steamer, after which it is to be handed in good condition to the Provincial Government. The latter also undertakes to solicit admission free from duty of all imported articles, such as steamer, boats, tools, and machinery required for clearing the channel; or should the application fail, to take upon itself the expenditure. The désobstructions of the bed were to be carried out according to the estimates of M. Liais; and the report was that £160,000 would at once be devoted to the work.

M. Dumont, on the other hand, bound himself, under penalty, to place within two years after date of signing, a steam-tug at Sabará. The vessel to make per mensem two passages, going and coming (viagens redondas) over the portion of the channel which would permit, and at the rate of ten leagues per day. The passage money to be 1\$000 per league; and for goods, 0\$100,* while Government employés were to pay only for rations. The contractor to keep the steamer in good order, and to be responsible for its injury or loss (except by act of God, or unavoidable accident), till it should belong to the Provincial Government. The stream between Sabará and Jaguára to be reformed, according to the plans of M. Liais; and to be rendered navigable, as the public purse shall permit, to its confluence with the Rio de São Francisco. †

* The public at once began to complain of these conditions. From Sabará to Jaguára the passenger will pay 20\$000; and each arroba (32 lbs.) of merchandize 2\$000. But the same distance may be done for 4\$000 by a mule carrying six to seven arrobas. Time of course is never taken into consideration.

† M. Liais calculates that a poling-boat drawing three palms (2 feet 1·8 inches), with a crew of 10 men working 8 hours per diem, and spending 15 days between

Sabará and the mouth of the Rio das Velhas, would carry 4000 arrobas (50 to 60 tons). At present this would be done by 340 mules and 42 men in 36 days. The ascent of the boat would demand treble the time and double the crew, yet it would have a great advantage over transport by animals.

On the other hand, a small steamer of 20-horse power, burning wood, which is everywhere plentiful, would tug the same load, working twelve hours a day, in five days

Sr. Dumont lost no time. In March, 1868, he brought from Bordeaux to Rio de Janeiro the sections of the "Conselheiro Saldanha" and "Monsenhor Augusto." The steamers are of forty and twenty-horse power, and their speed will be about eight miles an hour, upon a draught of ten inches. About the beginning of the next year they will begin operations upon the Rio das Velhas. I have already alluded to the horse boat, with inclined planes working paddle-wheels, and it is to be hoped that this improvement will soon follow the appearance of steamers.

As early as 1865 His Excellency the Councillor Manoel Pinto de Souza Dantas, then President of the Bahian Province, proposed to place a steamer upon the Rio de São Francisco. The little "Dantas," ninety feet by fourteen, and of about ninety-four tons, was built by Mr. Hayden at the Ponta d'Arêa Works, opposite Rio de Janeiro. The plates and machinery had been taken to pieces, and were sent numbered, with a model and detailed drawings, by land to Joazeiro. The road, however, was found unfit for wheel vehicles; of 346 bullocks sixty had died in the shortest time, and there had been an equal loss of horses. It is regrettable that the fine timber of the Rio de São Francisco had not been preferred to iron plates, and that local jealousies, of which I shall have more to say, had delayed the execution of a great project.

Of late years there has been a revival of an idea first suggested, I believe, in 1825 by a certain Colonel Joaquim de Almeida, and which, since 1832, had fallen into oblivion. This is to erect the valley of the São Francisco into the twenty-first province of the Empire.* The main object is to remedy the social, commercial, and political evils which arise from the isolation of the settlements; these are often 150 leagues distant from their provincial capitals. The only objection of which I am aware is the trifling increase of expenditure; it would, however, soon reimburse itself.

down, and in eight days up stream, with five hands for the tug and two or three for the boat. The expense of descending, including commander and engineer, would be 100\$000; of ascending, 160\$000. Doubling this sum for time lost in taking in and discharging cargo, and adding per trip 100\$000 for wear and tear of machinery, we have a total outlay of 600\$000 for each descent, and 900\$000 for the return. Thus the arroba should pay a maximum of 0\$150

from Sabará to Guaicuhy, and 0\$225 from Guaicuhy to Sabara.

* "I find that most of the gentlemen of the lower Province are disposed to sneer at the action of the Government in erecting the Comarca of the Rio Negro into a province; but I think the step was a wise one. . . . If the country is to be improved at all, it is to be done in this way" (Lieut. Herndon, 329).

Foreigners, who are accustomed to view the Brazil with the most superficial glance, have represented to me the evils of increasing an official staff already far too large. They seem not to be aware that the highly constitutional government, which has been well described as a republic under the disguise of an empire, requires to be strengthened as much as it legally can be, and that good "appointments" (as they are called in India) form the readiest and most practical mode of strengthening it. And if the Brazil cleave to number twenty, she may borrow from her northern sister, the United States, an admirable system "of territories" which are there States, and would be here Provinces, in statu pupillari, educating for self-rule.

On the Rio de São Francisco, where the subject of No. 21 is perpetually ventilated, every city, town, and village is prepared and resolved to be the capital. The great rivals are Januaria in the south, and to the north Joazeiro; both would, I believe, remain as they are than accept a subordinate position. The desiderata for a chief settlement are many: a central site, facility of communication with the seaboard and the interior, a healthy climate, and, if possible, rich and fertile lands. As will be seen, I would award the palm to Bom Jardim, or to Xique Xique.

The new province or territory might embrace the whole valley of the São Francisco River. The south would borrow largely from Minas, the Serra de Grão Mogor, Minas Novas, Montes Claros and Formigas, on the east; to the west the valleys of the streams Paracutú, das Egoás, Urucuia, Rio Pardo, and Carunhanha. From Bahia it would take the western watersheds of the Serra das Almas and the Chapada Diamantina, and from Pernambuco the western river valley north of Carunhanha. It would extend to the Rapids of Paulo Affonso, and communicate with the sea by a railway or a tramway, and the steam navigation now upon the lower river. And when population and wealth shall increase, it may admit of further subdivision into a southern territory, with Januaria for capital, and a northern, in which Joazeiro would command. Each of these would own about 500 miles of river, and both are more worthy of provincial honours than the unimportant Provinces of Alagôas and Sergipe, which are crushed like dwarfs between the two giants Pernambuco and Bahia.

The direct distance between Rio de Janeiro and Sabará is $3^{\circ} 12' 39''$ or 192 geographical miles, and the usual calculation for

the length of railway lines is 276 miles. Of this, however, a portion has been covered by the D. Pedro Segundo. For steamer navigation we have down the Rio das Velhas 366 miles, and down the Rio de São Francisco, from the mouth of the Rio das Velhas to the Villa da Boa Vista, 792 miles, perfectly clear, save at one point. From Boa Vista to the Porto das Piranhas, the railway or tramway will run for 216 miles, and from the Porto das Piranhas to the mouth of the São Francisco, in south latitude $10^{\circ} 27' 4''$, and west longitude (G.) $36^{\circ} 21' 41''$, there are 129 miles of good navigation.

Thus we have the segment of an immense circle, whose arc numbers 1779 geographical miles, exceeding the average breadth of Russia. Of these by railroad are only 492, the rest (1287) being water communication, which is usually considered to be ten times cheaper.

Communication even by steamer will not create population, except by attracting colonists; on the other hand, it will, like the railway, benefit the country by collecting and centralising the now scattered homesteads. This route of nearly 1800 miles, connecting the heart of the Brazil with its head, the metropolis, and placing its richest Provinces in direct communication with the outer world, will be the most important step yet taken. The opening of the Rio de São Francisco will not only benefit directly the Provinces of Minas Geraes, Bahia, Pernambuco, Alagôas, and Sergipe, and indirectly those of Goyaz, of Mato Grosso, of Piauhy, and of Ceará—it will contribute potently to maintain the integrity of the Empire.

CHAPTER XVI.

FROM GUAICUHY TO SÃO ROMÃO.

FIRST TRAVESSIA, 24 LEAGUES.*

ASPECTS OF THE RIVER.—ESTREMA VILLAGE.—GAME.—THE OTTER.—THE CASHEW SHOWERS.—REACH SÃO ROMÃO.—ITS HISTORY.—GIANT FIG-TREES.—ACTUAL STATE OF THE TOWN.—A GOOD TIME COMING.

Montanhas vimos, campos mil patentes,
E hum terreno nas margens tão extensa,
Que poderá elle só neste hemisferio
Formar com tanto povo hum vasto imperio.

Cara., 6, 27.

THE Pirapóra had been on the São Francisco my terminus *ad quem*, and now it was *a quo*—the rest of the voyage lying down stream. The weather was still surly from the effects of the last night's scold, but the air was transparent, cleaned of atoms, spores, and molecules, whilst increased humidity, as in England, rendered it still clearer. The books no longer curled with drought, as in the Rio das Velhas, and an increased reference to the quinine bottle was judged advisable. The Vento Geral, or Eastern Trade, set in, but we were evidently at the break of the rainy season.

Wednesday, September 18, 1867.—Ember Day. Of course delays were numerous; the new crew had to shake hands with the villagers. It was noon before the Eliza was poled off from the bank of Guaicuhy, and turned "head downwards" into the Great Stream.† We left on the right the Ilha do Engenho, upon which people were congregated; canoes were made fast to the alluvial

* The word Travessia is written by Koster (i. iv.) Traversia, and translated by M. Jay "Traversée." It is probably a local form of Travessa, a "passage." In Spanish South America "Traversía" is applied to a land stage. This Travessia, or trip, begins normally at Pirapóra, and thus

numbers thirty leagues. I have heard the boatman, when we crossed the stream under difficulties, call it a "Travessa braba."

† "Navegar cabeça abaixo," in the dialect of the river, is opposed to "Cabeça acima," going up-stream.

banks, rising in regular steps or grades; this side of the island is sandy, and fir-trees rise from the banks. The Ilha do Boi led to the Barra do Jatobá, a stream coming from the west, and this we shall find to be the rule of almost all the great affluents. Its waters, called "seizoentes," "sesonarias," "pestíferas," breed, they say, chills. A little below it were detached rocks, Pedras do Agato;* these the pilots did not expect to pass, as the head wind, especially during the afternoon, often waxes fierce there—it did not offer let or hindrance. Passing "A Barreira,"† where there was a clearing and a few huts on the right bank, we saw large deposits of the iron-revetted amygdaloid "Cánga." Beyond it was the mouth of the Jequitahy‡ stream, breaking the right bank with a gap of some 150 feet, and gracefully curving through the low trees. On the opposite side is a remarkable point, the Pedras de Bura do Jequitahy, horizontal strata of stone from which blocks and boulders have been washed into the stream.

As soon as the air became dusk we looked about for a nighting place; here the working hours are from sunrise to sunset. Boatmen will not travel in this part by night; even with the full moon, they cannot see the "Maretta," or ripple caused by snags below surface. Our men preferred the exposed left bank, which supplies wood; the right affords more shelter from the east wind, and from the storms which sweep up from that direction. In the river tongue, the latter is known as Banda da Bahia, the Bahian side, the western being the Banda de Pernambuco. These are old names, dating from the days when the captaincy of Pernambuco covered part of the present Minas Province.

This portion of the São Francisco, and, indeed, we may say the whole course, is more civilised, tamer, and less picturesque than the Lower Rio das Velhas; we passed hardly a league of land without sighting huts or improvements. Making fast at 5:30 P.M. to a sandy "praia," and climbing up the steep clay bank, we found a small tenement, surrounded by a dwarf field of manioc, poor bananas, and first-rate cotton, which seems to flourish everywhere. The maisonnette turned its back upon the

* Or Agatho, probably a P. N.

† M. Halfeld calls it "Barreira dos Índios," a name given to a place further down stream.

‡ Or "Jequitahy," a considerable stream, 120 direct miles long, heading in the western

counterslope of the chain that discharges eastwards into the Jequitinhonha. It is navigable for canoes, which ascend it three leagues in the dries, and twenty-eight during the rains.

west, the rainy quarter, and some trouble had been taken to build it. There was a kiln constructed in the river bank, a circle four feet in diameter by two deep, a clay floor pierced with holes, separating the fire below from the material to be fired: the latter operation appears very insufficiently effected both in pots and tiles. The Western Valley is bounded at a distance of about five miles by the Serra do Itacolumi; the mists, however, robbed us of the view. On the opposite side was the Povoado do Olho d'Agua, a few thatched sheds, buried in orange trees and Jaboticabeiras.

To-day the stream has averaged some 1200 feet in breadth, and in places has widened to 1600 yards. The banks to which the flood swings are eaten below, and rise perpendicularly, whilst the opposite side assumes the natural angle. The height varies from 25 to 36 feet; the material is a base of white or reddish sand, supporting hard "taúa," and the surface is rich humus, mixed with silt. The supply of wood will last for years, but the vegetation is uninteresting after the magnificent avenues of the Rio das Velhas. The surface is composed of swells and waves of ground, in whose hollows are Alagadiços, or stagnant waters. Now, also, begins the Ypoeira, which partly corresponds with the Igarapé,* or canoe path of the Amazons and the Lower São Francisco. When the bayou is considerable, it retains its water through the year, and is drained to the level of the dries by a Sangradouro. These little creeks carry a quantity of sand; they are mostly disposed perpendicularly to the stream, and they assist in unwatering the waves of ground which are not reached by the inundations. In many places there are lumpy hills, forested or cleared, and on both sides the divides of the riverine valley are well marked with heights which will disappear a few leagues down stream.

September 19.—We effected an unusually early start, but our men are paid "by the job." The right bank showed a mass of building material, argillaceous schistose sandstone in horizontal

* Igarapé is derived from yg, water—jara, lord (*i.e.* a canoe), and ipé, where (it goes). Of the Ypoeira feature I shall have more to say further down stream, when it becomes important. It is what Lieut. Herndon calls Caño on the Upper Amazon, a natural arm of the main river, opposed to the "Furo" (small mouth) and the "furado," an artificial (but sometimes

a Nature-made) cutting. That traveller also remarks, "Igarapé is the Indian name for a creek or ditch, which is filled with 'back water' from the river; and the term Paranamiri(m)—literally, little river—is applied to a narrow arm of the main river running between the main bank and an island near to it."

slabs; on the other side was "As Lages," a clearing with bananas and oranges. Presently rose before us the Morro da Estrema, a terrapin-shaped buttress, disposed perpendicular to the stream, high above the floods, well wooded, and with good improvements below. The little village of the same name was at the bottom of a sack, formed by the river sweeping to a projection of the opposite left bank. It is built upon an inner ledge of rising ground, and a few poor tiled huts clustered about the little church, N^a S^a do Carmo.

At noon we halted for rest on the Pernam side, below the hamlet known as Serra da Povoação.* The hills of that name form a meridional line of scattered lumps running parallel with, and rarely three miles distant from, the stream. At the Serra or Serrote do Pé de Morro, they impinge upon the banks; the little crescent is called by the people Serra do Salitre, as it contains a saltpetre cave, and they declare it to be a north-eastern branch of the great Mata da Corda† range. Opposite it the Barra do Pacuhy‡ forms the usual Corôa; a little below, on the left, we were shown a sand-bar, where a pleasure party of seven had come to grief some eight years ago. They were returning from a festival at Estrema, a little place of great debauchery; the "dug-out" struck a snag, and all were drowned.

Passing the Riacho da Fome, an ill-omened name now not uncommon, we anchored before sundown at the mouth of a Sangradouro, called the Cachoeirinha, from an adjoining village.§ The clay wall of the river is here some thirty-two feet high, and the streamlet draining a bayou is about a mile in length. The Mandim fish had awaked, and grunted like a gurnard, and his hunger in the afternoon suggested to the pilots that he foresaw rain. Presently a cold east wind arose, the clouds gathered in heaps, and the horizon gleamed lurid with the reflection of field fires, easily to be mistaken for electrical "weather lights." During the early night there were raw and violent gusts, and they presently induced a downfall whose steadiness promised persistency.

* Serrote da Povoação (M. Halfeld).

† Forest of the Cord, so called from its long, narrow line.

‡ This stream runs almost parallel with the Jequitahy, and drains the Montes Claros de Formigas. It has no mines, but the lands are good for pasture and agriculture.

The Pacú, according to Castelnau, is the genus *Characinus* of Artedi, and sub-genus *Curimata* of Cuvier. The carp-like body averages two to three palms in length, and is considered good eating; the Pacú vermelho being held to be the best.

§ There is a Cachocira hamlet on the right or opposite bank.

This day showed us a more than usual quantity of animal life. A Jacaré (cayman) stared at us from the bank, with the short round muzzle protruded in curiosity, and another lay dead upon the stones. Jacús (Penelopes) chattered on the tree-tops, and afforded fine practice, but the bush was too thick for bagging, although we worked like men for the pot. A large otter plunged close to us, and at times we heard their whistling cries, which the pilots compared with the quarrelling and scolding of old fishwives, and the frequent ejaculation of "diabo." There are two kinds, the Lôntra, or common species (*Lutra brasiliensis*), and the Lôntra grande, also known by its Tupy name, Ariranha. This animal is said to attain a length of six feet; the colour is a lighter brown than in the smaller variety, and a white ring encircles the neck. This species may have given rise to the Mãe d'Agua, or water fairy; it bites terribly, and dogs fear to attack it when it is making its escape over the rocks. The otter has an extensive range in the Brazil, it is frequent upon the streams of the seaboard, and if the "main d'œuvre" were cheaper, its skins should reach the markets of Europe. The people of the São Francisco destroy it because it is so injurious to fish. It lives in families, tunnels into the river bank, and drives a breathing shaft (*suspiro*) to the surface. The hunter stops both holes for a time, and then opens the entrance, the inmates rush out to take the air, and then they are killed *ad libitum*. Often, also, they are shot in the rivulets, and their bodies are found floating after some hours. The skins are of a comparatively high price, I bought none under 2\$000.

September 20.—Ember Day again. In the morning the men looked like turkey buzzards during a heavy shower: they were so benumbed that we had some difficulty in avoiding the snags and a dangerous sunken rock, said to be of silex.* After two hours' work we passed on the left bank the Paracatú de Seis dedos, which M. Gerber has located on the right. The pilots praised it for good water (*rio bonito*), but none could explain how it came to have six fingers. Near its mouth was a hamlet and clearing on the finely-wooded banks, and the creaking of the water-wheel spoke of molasses and rum.

One league below that point we halted for breakfast on the left

* The pilots called it Pedra de fogo (of fire), or de Espingarda (of the gun).

bank of the great Paracatú River.* Its dexter jaw showed a point or shoal which drove it to the other side, the centre was garnished with dangerous chevaux de frise of embedded timber, and the course, bending like a Turkish scimitar, was painted with the red Páu Jahú. The sides, despite their height, are flooded in the wet season, and the sandy ground, mixed with humus and clay, slopes to bottoms where the trees show a water-mark of eight feet. There was little undergrowth, and the surface was strewn with dead leaves: it was cut in all directions by tracks and paths; the cattle fled from us, and the ticks soon caused us to beat a retreat.

Yesterday we had seen but a single bark creeping up the right bank. To-day we find two ajôjos anchored at the mouth of the Paracatú. The owner, a stout, healthy man, whose appearance spoke well for the climate, was taking provisions to Capão Redondo, a "Garimpo," or small diamond-digging up-stream. In former days hundreds of arrobas of gold were sent from this valley; he declared the bank-diggings to be now exhausted, but the bed to be still rich. M. Halfeld tells us that in his day the active and energetic riverines supplied flesh and cereals to the Lower São Francisco, even as far as Joazeiro, distant nearly 700 miles. Our informant stated that the staple industry of the land was stock-breeding, although agriculture still thrives, and the fine Maçapé soil will produce any quantity of fruits, especially mangos. He ended by predicting that we should not reach São Romão that night, as he himself would probably not have done. Of course we resolved to give him a practical *démenti*, and we now thought little of discouraging reports which had begun at Rio de Janeiro, and which will end there.

After receiving this "formidable tributary," the São Francisco widens and shallows. At 11 A.M. we passed on the left hand side a remarkable bluff, the Ribeira da Martinha,† which drives the course nearly due east. Before reaching it the land was low and

* Dr. Couto and other old writers prefer Piracatu (pyra-catú), or good fish river, opposed to Parahyba (Pira-ayba), the bad fish river. This important stream drains 2° 30' of latitude by 3° of longitude. Its northern branch, the Rio Preto, breaks like most of the great western influents, through the frontier chain of Goyaz, the Serra de Tauatinga, which sets off the great northern versant, the Serra dos Pyrenéos. The mouth is about 1500 palms wide, the

normal breadth of the stream is 600 feet; twenty-eight falls and rapids encumber the bed, and it is navigable, after a fashion, nearly 260 miles, to the Porto do Buriti.

† Or Ribanceira (bluff) da Martinha (P. N. of a Moradora, the proprietrix). The up-stream end is the Barreira da Martinha proper; the centre, Ribanceira de Amancio José; and the eastern, or down-stream, Ribanceira da Martinha.

thickly-wooded like an old river bed, possibly that of the Paracatú.* The Barreira is the butt-end of a ridge cut off by the stream: the material is compact argile of many colours, white and brown, pink and yellow, surfaced with thin humus; it stands up stiffly to a height of some eighty feet, and at the base it has fallen into the usual slope. After a total length of some 440 yards it thins out into "Cánga," and terminates in woodland. Below it the bank became sandy, and showed the usual huts and improvements which argue the approach to a place of some importance.

Beyond this Barreira the river is a mass of shoals, sand-banks, and sand-bars, whilst the stream varies from 0·87 to 1·28 miles per hour. The "remanso," or sluggish current, is dreaded by barquemen, and usually the General Trade forms a troublesome head wind. For some hours the low dark clouds, dissolved by the cold breath of the north, which in this section promises a continuance of wet weather,† had indulged us with a slow, steady rainfall: it began at 10 A.M., and lasted, with rare intervals, till 4 P.M. An ajôjo is certainly not a pleasant place during the "Cashew Showers:" on the other hand the heavy discharge from above silenced the gale.

At 1·15 P.M. we grounded in the narrow channel of hard gravel between the left bank and the Ilha do Jatobá: the men were obliged to take foot,‡ *i.e.*, to tumble in, and to shove us off. Here the total width of the river, including the island, is some 1600 fathoms, and wonderful to relate, M. Halfeld proposes to block up the western channel with "stakes and fascines." The Jatobá is the normal type, an elongated lozenge with the side angles shaved off, and outlines of sand in all directions, except where the bank is highest. At this season it is double: upstream there is a small, well-wooded clay formation, which a long flat sand-bank connects with a similar and larger feature to the north-east, and the latter boasts of a few inhabitants. Further down there is a "Pedra Preta," black blocks and green Arindá shrubs, as on the Lower Rio das Velhas, which drives the stream almost at a right angle to the west. The next turn is to the

* The pilots denied this, but their reason was that they had never seen the stream here.

† The cause is the cold wind setting in after a few days of hot sun and still, damp air. The people call these showers, which are normal in August, *Chuvás de Cajú* (of

the Cashew nut), a term evidently derived from the Indians. They declare that the wet season does not begin till November; but this year they are manifestly out of their reckoning.

‡ *Tomar pé*, to find deep water by wading.

north, and presently after thirty-six miles we reached our destination for the night.

São Romão, or to give it the name in full, "Villa Risonha de Santo Antonio da Manga e de São Romão," (the riant (?) town of St. Anthony of the Cattle-ford, and of Saint Romanus)—takes its nom de baptême from the holy martyr, St. Romanus, who presides over the 9th of August, and who is, I believe, generally ignored by the English faithful. Two Paulista explorers, the cousins Mathias Cardoso and Manoel Francisco de Toledo, having killed an Ouvidor-judge, fled with their families and slaves to the Sertão do São Francisco. The date of their journey is not positively known, but it is supposed to have been between 1698 and 1707. They were driven upon the islet opposite the town, and having beaten off the Indians they settled here for a time, and then resumed their voyage, finally establishing themselves at Morrinhos and Salgado. Between 1712-13 the Bishop of Pernambuco, hearing that the Indians were of peculiar savagery, sent the Padre Antonio Mendes to catechize them. Before 1720 S. Romão was a Julgado belonging to the Comarca of Sabará. The district was presently subjected to the arrondissement of Paracatú, a city then newly settled, and distant 200 miles—only. On August 16, 1804, the Bishop D. José Joaquim da Cunha sent its first parish-priest (parochó), the Rev. Feliciano José de Oliveira. A chapel was dedicated to Santa Anna and São Luis at a place above the confluence of the Japoré with the São Francisco; this was removed to S. Romão on his own day and the invocation became Santo Antonio. The settlers thrived; São Romão, in 1804 a freguezia, rose in 1831 to the honours of township.

I shall describe at some length this God-forgotten place, not for what it is, but for what it will be. Many travellers have mentioned it,* and most of those who have visited it left with the worst impressions. The last was a naturalist sent down the river by Professor Agassiz; he got into trouble by carrying weapons. There is absolutely no reason why the settlement should be so miserable, the people so barbarous. A good building-site is close at hand, the surrounding country is admirably

* St. Hil. (I. ii. 428) regretted "de n'avoir pu visiter la Justice de S. Romão;" and he defines the symbol of a "justice "

as "le poteau surmonté d'une sphère." The Monsenhor Pizarro had previously given a detailed account of it.

fitted for agriculture, and the town is well placed for the carrying trade. The day I hope is not distant when some wayfarer shall pass through São Romão and find my description of the São Romanenses utterly obsolete.

Near the town the stream, nearly 1300 yards broad, runs to the north, and hugs the left bank; it is broken by the island of São Romão, about four miles long by 400 paces broad, densely wooded, uninhabited, and still private property. At the "port" one canoe was drawn up, and about half a dozen were in the water; the only "ship-yard" is on the top of the bank. Staked to the side was a fine barca flying the Imperial flag. The crew, including the pilot, numbered seven, and the tonnage was 4000 to 5000 "Rapaduras,"—20,000 to 25,000 pounds.

We swarmed up the steep bank, some thirty feet high and buttery with rain; the lower part was yellow clay much mixed with silt and sand above. On the summit appeared a remarkable feature, a line of six enormous Gamelleira figs,* like those described upon the Tocantins River. At the point where the stream deflects a little to the east, a decayed stump shows that there was a seventh, and two of the giants are likely soon to be washed away. The pair to the south raise their majestic crowns of stiff and burnished ovoid leaves, and overhang the stream with an admirable umbrella of verdure. The trunks, instead of being as usual, low, thick columns, are bundles of compacted trees, five or six feet high, and of the horizontally projected branches, one, not the smallest, measured 100 feet. The birds had settled in colonies amongst the boughs, and but few epiphytes had sprung from the bark. In one of the two which front the landing-place time had dug a chamber used as a dwelling-place; the idea must have originated in Central Africa, where the bulbous Calabash acts alternately home and water-cistern.

Immediately beyond this ridge with its colossal growth, the land droops towards a bottom flooded during the rains, and thinly covered with bush; it must be a hot-bed of miasma during the retreat of the waters, and the sun must raise it well to the

* The Brazilians term the Gamelleira either Preta or Branca, chiefly from the colour of the bark. Koster (ii. 11) makes the latter useless, and the former distil, after incision, a gummy juice, which is taken internally for dropsy and cutaneous

diseases. According to the System, the acrid milk of the white fig (Figueira branca, or *Ficus doliaria*) is an anthelmintic, but it adds that many other figs have the same properties.

level of the local face. The swamp is subtended by a rise corresponding with the lay of the ridge running parallel with the stream, and facing the east. Here is the Rua do Alecrim, consisting of a dismantled hut on one side, faced by seven poor tenements, of which one, by affecting a square box as an upper story, ambitionizes the title of "Sobradinho." Beyond this thoroughfare of flowery name, and lying side by side with it, was the Rua do Fogo, a higher and drier site. Here we counted fifty-four tenements, mostly with roofs of coarse tiles and mud and wicker-work walls,* slightly washed with Tauatinga; the large compounds are either railed or enclosed with pisé, coped with thatch. The most pretentious show attempts at ornamentation, white scrolls of plaster on azure ground, doors striped with blue, and windows with small lattices instead of the shutter or the cotton cloth. Amongst them were three Vendas, the main of whose occupation is to sell spirits; and the blacksmith in his leathern apron, suggested the village Vulcan of Negroland. The wealthier houses had wooden steps leading to the raised floors, the poorer logs of wood above the level of the puddly thoroughfare, by courtesy called a street. To the south some of the tenements were propped up with stays and others were in ruins; not a few had a closed room attached to the unwalled tile-roof which the Tupys called Copiar or Gupiára, and sometimes Agua furtada. In this place the traveller is allowed to swing his hammock and to cook his meals.

Going northwards we passed the Quartel, or barracks, hung inside with carbines, and tenanted by eight soldiers, who on paper appear as a battalion. These black-brown men in Kepís and holland blouses looked somewhat more surly, as in duty bound, than the rest of the citizens; they eyed our patent leather waist belts curiously, but they did not interfere with us. Beyond the Quartel was the Lago da Cadêa, a tiled roof and an open scantling, suggestively representing the future prison. João de Barro had derisively built his domicile upon the cross beams, and upon not a few of the wooden crosses profusely scattered about the settlement.

Beyond the northern end of the Rua do Fogo, and surrounded by bush, was the old Rosario Church, definitively broken down.

* The citizens declare that they have no stone, when the river bed is a quarry.

Turning to the left we ascended the Rua Direita, an embryo thoroughfare which numbers twelve houses, including a farrier's. It rises gently from the river to a cemetery, denoted by a cross, from which half the instruments of the Passion had been abstracted. This village of the dead was fronted by a support of rough stones, while the rest was wholly unwall'd; the surface was cumbered with timber, and littered with graves which lacked monuments. In the centre of High Street was the square of the new Rosario, a white-washed temple with three shutters, a very model of meanness.

To the west of this Rosario is the Rua da Boa Vista, the aristocratic quarter, numbering thirty houses; it commands a pretty view of the stream, the islet, the reaches above and below, and the low blue hills on the Bahian or Eastern side. I sent in a card to the Delegate, Sr. João Carlos Oliveira e Sã. He had probably never seen that civilised instrument, for he left us in the rain till a friend beckoned to us from the window to come in, and after eyeing the pasteboard much as a crow inspects a dubious marrow-bone, he returned it to me with a little weary sigh. Unwilling to accept defeat, I produced my Portaria or Imperial passport: he glanced over it and restored it in dead silence. My desire for information was likely to catch cold, when fortunately a decently dressed man walked in, and did not prove so chillingly uncommunicative. I told my tale all down the river, where men agreed in giving a good name to the Delegate; it is therefore only fair to suppose that he was exceptionally suffering under the influences of São Romão.

Resuming our walk after this episode, to the south of the Boa Vista we found a second church, the N^a S^a da Abbadia; it boasted of the usual white-washed and two-windowed face, wearing a mutilated, noseless look. To the west or inland of this line are a few straggling huts, whose enclosures are hedged with the organ cactus. Here is the highest and healthiest ground, where the villa should be built; unfortunately it is too far from the business quarter, the river side. Therefore, as in our West African "convict stations," men will not move; they would rather see the floods walk into their windows. At times exceptional inundations put them all to flight. In 1838 the water rose in places five feet above the floors, and in 1843 the lowest street was nine feet under water.

The trees scattered about the town show the excellence of the soil. The Almecega or Mastich grows to the largest size. Nowhere in the Brazil have I seen finer tamarinds, the natural corrective of liver complaints. The Imbuzeiro (*Spondias tuberosa*) is a magnificent rounded growth; the juice of this myrobalan, tempered with milk and sugar, makes the favourite "imbusada" of Pernambuco and Bahia. There is an abundance of fruit, limes and oranges, papaws and bananas. In the higher levels, where the thorny mimosa and acacia flourish, cotton grows taller than the houses, and in the lower parts sugar-cane flourishes. Behind and above the town the vegetation is that of the campo, excellent for cattle-breeding. In the streets we saw a few small horses, the goats and poultry were tolerable, the pigs and sheep much wanted breeding. An idea of the popular apathy may be formed from the fact that whilst the river flowing before their doors produces the best of fish, and while salt may be brought from a few leagues, if indeed it cannot be washed from the ground, the townspeople eat the hard, dry, and graveolent "bacalhão," or codfish, brought in driblets from Newfoundland.

In 1822 Pizarro gave to S. Romão 200 houses and 1300 souls. Gardner, in 1840, reduced the number to "not above 1000 inhabitants." M. Halfeld (*Relatorio*, pp. 27—28) numbers 220 houses and 800 souls. The Almanak (1864) assigns to the municipality 8676 inhabitants, 723 voters, and 17 electors. According to my informants, in 1867 the houses, or rather hovels, amounted to 200, and the tenants to 450. When Saint Hilaire wrote,* the "village of S. Romão" monopolised the carrying trade of salt between the river and Santa Lusía of Goyaz: it also exported a considerable number of hides. In those days it had its "richards," Major Theophilo de Salles Peixoto, the late Lieutenant-Colonel Ernesto Natalista Amaral de Castro, the Capitão José Jacob da Silva Silveira, and others. A relic of the good times is the vicar, Padre Antonio Ferreira de Caires: hearing that he was a "curioso," † rich in local information, I called upon him; unfortunately he was at his Fazenda, and the Sacristan assured me that there was no such thing as a Livro do Tombo, or parish register.

* III. i. 216 and 359.

† St. Hil. (III. i. 104) remarks, "le mot curioso répond dans notre langue, à celui d'amateur; mais il a un sens moins

limité." In the Brazil, "aficionado" is an amateur, and curioso also includes the non-professional expert.

About ten years ago the diamond-diggings at Santafé* and on the Paracatú River have caused a small exodus, hence partly the falling off of the census, and the exceptional number of old men, women and children. The fevers have greatly increased; we could read ague legibly written in the yellow skins, emaciated frames, and listless countenances of the people who suffer terribly during the retreat of the waters between May and July. The fomentors are, as usual, poor diet, excess in drink and debauchery, late hours and extreme filth, not of person, but of habitation. In this point they seem to have borrowed from the indigenes of the land, who bathed several times during the day, but allowed themselves to be littered out of their "carbets" (wigwams) by mountainous collections of offal.

The São Romanenses did not affect me pleasantly. I did not see a single white skin amongst them; they were a "regular ranch" of bodes † and cabras, ‡ caboclos and negros. The lower orders—if there be any in this land of perfect equality, practical as well as theoretical—were in rags; the wealthier were dressed in European style, "boiled" shirts and velvet waistcoats, but their lank hair and flat faces recalled the original "Indian." They are devout, as the wooden crosses of squared scantling affixed to the walls show: scant of civility, they have barely energy enough to gather in groups at the doors and windows, the men to prospect, the women to giggle at the passing stranger. Some of the older blacks plied the primitive spinning wheel, but the hammock, despite the raw chilly weather, was in more general requisition.

São Romão, I have said, is well situated for trade. A good road, some sixty leagues long, runs up the valley of the Rio Preto, the northern branch of the Paracatú. A little beyond the settle-

* This place was described to me as a little village, with the rudiments of a church in the municipality of S. Romão.

† In the Brazil, "bode," or he-goat, is a slang term for a mulatto.

‡ St. Hil. (III. ii. 272) makes the *Cabra* (she-goat) a mixed breed between the Red Man and the Mulatto, and synonymous with the Peruvian "Chino." Here it is applied as a general term to those who are neither black nor white; addressed to a man, it is grossly insulting, but I have heard a boatman facetiously apply it to himself.

The wild men, I have said, gave the name *macáco da terra* ("country monkeys") to the African. Yet travellers have stated that they were fond of such monkey's meat, and all agree that their women had "un goût très-vif pour les nègres." Some have advised, by way of saving the "Red Man," to mix his blood with the black. This is indeed unanthropological. There is no need to preserve a savage and inferior race, when its lands are wanted by a higher development; and, in this case, the artificial would be worse than either of the natural races.

ment, called Os Arrependidos, it crosses the Serra of Goyaz, which here offers no difficulties. Thence it bends north to the old Villa dos Couros, now Villa Formosa da Imperatriz. Here there is communication with the great Tocantins tributary of the Amazons, viâ the Rio das Almas, the Corumbá,* and the Rio Paranã, which bears canoes.

At night-fall we returned to the Brig Eliza, lighted the fire, drew down the awning, and kept out as much of the drifting rain and cold shifting wind as possible. It was not easy to sleep for the Babel of sounds: here the dark hours are apparently the time

When man must drink and woman must scold.

The Samba and Pagode seemed to rage in concert with the elements, the twanging of instruments and the harsh voices screaming a truly African chaunt, suggested an orgie at Unyanguwwe. Evidently much reform is here wanted, and it will come in the form of a steamer.

* Men of information at Januaria, as well as São Romão, mentioned the Corumbá stream and village. I hope that they have not confounded it with another Corumbá, the great northern influent of the Southern Parnahyba, or Parahyba. Usually, traders embark at the Villa das Flores, or the Paranã, or Parana (St. Hil., Parannan), the eastern head water of the Tocantins. Castelnau (ii. 196) declares,

“Le Parana peut être descendu en canot jusqu’au Pará.” My informants described the river as very “bravo” above S. João da Palma, at the junction of the Araguaya, or great western fork, and some have spent six months in ascending it. Hence they say goods worth 0\$700 at Pará on the seaboard, sell at the Villa das Flores for 5\$000, and a bottle of wine bought for 0\$500 fetches 4\$000.

CHAPTER XVII.

FROM SÃO ROMÃO TO JANUARIA.

SECOND TRAVESSIA, 26½ LEAGUES.

STEAM-BOAT ISLANDS.—THE URACUIA RIVER.—THE VILLAGE AS PEDRAS DOS ANGICOS.—QUIXABA-TREES.—THE RIO PARDO.—APPROACH TO THE CITY OF JANUARIA.—VEGETATION AT VILLAGE OF N^A S^A DA CONCEIÇÃO DAS PEDRAS DE MARIA DA CRUZ.—REACH THE PORTO DO BREJO DO SALGADO.—THE PRESENT CITY OF JANUARIA.—ITS HISTORY AND PRESENT STATE: DANGER OF BEING SWEEP AWAY.—RECEPTION.—PETTY LARCENY.—CIVILITY OF SR. MANOEL CAETANO DE SOUZA SILVA.—THE PEQUIZEIRO.—MISSIONARIES AND MISSIONERS.—WALK TO THE BREJO DO SALGADO.—ITS ACTUAL STATE.—ROMANTIC LEGEND OF THE PEOPLE'S DESCENT.

— outro se engrossa
De São Francisco, com que o mar se adoça.

Caramuri.

Saturday, September 21, 1867.—The ceaseless drenching rain reduced the men to a manner of torpid hybernating state. After a start under difficulties we threaded the long line of shoals and islets. In some places as many as six sand-bars were in sight; all were of finely sifted material without the gravel of the Corôas in the Rio das Velhas. Passing the Roça do Porto Alegre and other clearings* we came to the first of many features which will last till we reach Remanso. It is a long, narrow bank of stiff sand, sharp fore and aft, and shaped like a river steamer in the United States; in places bushes formed the paddle-boxes, and strata the lines of caulking. We called them Steamboat Islands. The vegetation was generally of yellow-green, showing want of fat humus.

A head wind, driving misty blue clouds, drove us to the right

* M. Halfeld calls this pretty spot "Povado," or Village do Porto Alegre. His villages are mostly termed by the pilots "fazendas" here, meaning tracts cultivated by a number of settlers. The next

was the Barra do Brandão, a long, low clearing on the right. The bank also shows improvement, but it must be extensively inundated.

bank. The mercury showed 71° F., but we trembled with cold; such is the effect of air in motion, which seems to despise a sun nearly overhead. Furling the awning we made a good "lick" to the entrance of the great Uracua stream.* The right bank was wooded with a truly magnificent vegetation; it showed for the first time the Carahyba de flôr roxa, a tall tree with lilac-coloured blossoms, which will presently become common, and here we observed that every great western influent brings down with its waters a new growth. The mouth of the Uracua is about 315 feet broad, and behind the woodland the low bank of yellow clay bears only thicket.

A white-washed house, now a novelty, appeared on the Bahian side, and presently we took the left of the "Ilha do Afundá," which is interpreted to mean that the water is deep; its material is a pure yellow and easily melted sand. The upper part of the islet is well clad with various growths. We then ran in mid stream past the second Afundá, † and, after eleven hours of hard and comfortless, dull and eventless work, we came to anchor at a praia on the left bank.

September 22.—The north wind which had raged all night blew itself out about dawn, and we set out with alacrity. The banks were dead flats, in places splendid with tall sugar-cane and tree-cotton, but generally showing second growth where magnificent forests had been. Passing on the left the little Acary tributary, ‡ we found another high white bluff about a mile long,

* Also written Aracua, which means, say the people, "fatura," or plenty, alluding to the fertility of its upper banks. It drains the southern slopes of the Chapadão (big plateau) do Uracua, and is divided from the Paracatú Valley by the Serra do Rio Preto. Its area of drainage is latitudinally 2°, and longitudinally, 1° 30'. The stream, though broken by many rapids, is navigable for rafts and canoes as far as Campo Grande, 102 miles from the mouth.

† M. Halfeld calls this Ilha das Carahibas, and elsewhere spells the word Caraiabas.

‡ According to the pilots, the true Acary is further down-stream.

The name of this fish (a loricaria of many species) is also written Acari and Acarehy. The Tupy name was Acará, with the terminations, -apuã, -assú, -tinga, and -peixuna. In this river we find the A. de Pedra, A. de Casea (or Cascu-do), A. de

Lama, and A. de Espinho. It is the Juacaná which Marcgraf saw at Pernambuco and the Cachimbo, or Cachimbáo, of Ilheos. A species is probably the Acará bandeira (*Mesonanta insignis*, Gunther) of which Mr. Bates (ii. 140) gives an illustration. It grunts like the Mandim, and the pilots say that when eating the mud and weeds from the canoe-bottom it rubs its bluff head against the wood, and produces the peculiar sound. They declare that it lives in holes along the banks; many deem it poisonous, and it is generally thrown away on account of the trouble of cooking it. Both the black and the white kinds have hard, spiny skins, with longitudinal lines of points, highly dangerous dorsal fins, and hooks above the caudal fins. Another well-known loricated and "grunting" fish is the "Casculo," which abounds in the rivers of the interior. The people praise it, but I found the white meat soft, tasteless, and full of thorns.

and divided into two sections, the Barreira do Indio (do Honorio, M. Halfeld), and the Barreira Alta. Here we remarked the abundance of the Angico Preto acacia, on this part of the stream an ugly tufted tree; its timber is too dry for use, but the gum is given to consumptive patients; the bark abounds in tannin, and the ashes in potash.

About noon, entering S. Lat. 16°, we came to a new feature, "as Pedras" (dos Angicos), and we landed on the right bank to inspect it. Here a wall some forty-two feet projects from a shallow sag, fronts to west and drives the river to the north-west; it runs nearly a mile down-stream, and is found in a hollow, to the north-east of the little village. The outcrop is evidently the base of a bulge of ground observed on the east. The floor near the water was a hard bluish limestone, effervescing kindly under muriatic acid; above it was a stratum of laminated, friable clay-shale, capped by a bluer calcaire, with dislocations, broken blocks and horizontal bands, varying in thickness from three inches to three and a half feet. Water drops appeared upon the exposed slabs on the summit, which is always six feet above water, and it was revetted in parts with iron clay, whilst to one block is attached a small portion of quartz conglomerate. This is one of the many places which will supply admirable hydraulic cement.

The bank and the village showed a scatter of noble Quixabeira trees, huge bouquets of verdure, whose aromatic flowers and perfumed shade attracted hosts of bees.* The little chapel of São José, the brago of the place, is about nine feet above the floods, and yet boasts of a stone foundation. Walking up the sandy street, perpendicular to the stream and showing traces of pavement and bottom, we found the usual hollow parallel with the ridge and periodically under water. In the loose free soil, cotton, essentially a sun-plant, grows neglected, fifteen feet high, and the castor shrub twenty. In "Water-Street," whose houses and ranches were superior to those of São Romão, appeared three Vendas, with men sitting outside the counters, or using them as card-tables. Two shoe-makers and a dry-goods store seemed

* Also written Quichabeira, one of the Sapotaceæ, a tree which covers large tracts on the Rio de São Francisco, above and below the Great Rapids. It resembles the Zizyphus, produces an edible berry, and

affords a fine shelter for cattle. The System mentions the Quijaba and the Catinga branca (here called Catinga do Porco), as leguminosæ abundant in stryphnum.

to be doing a thriving business. South of the village were three canoes selling fine water-melons. Under an old angico hung with dark moss stood the frame-work of a barca, very solidly built of cedar.* On the northern waterside washerwomen were plying their trade, whilst their bantlings swam about, or played on carts with wheels of one piece some eighteen inches high. Horses and mules were resting after being ferried across the river, and a little caravan appeared upon the opposite bank. This at once explained the prosperity and the civility of the place. The Delegado had at once sent to procure lodgings for us. It communicates with the Acary River, where, at the distance of ten leagues from the mouth, are diamond diggings. São José das Pedras dos Angicos now numbers ninety-five houses and a population of 500 souls; we left it convinced that it has good things in store for it.

Resuming our way in an exceedingly hot sun, we presently passed on the left the Barra do Acary, † which breaks its way through a sandy Corôa. Below the mouth are three "steamboat islets" of the same name, and the Ilha do Barro Alto, a wooded holm. Then came the mouth of the Rio Pardo ‡ about 140 feet broad; here began the magnificent bosquets (capoês) of cedar, vinhatico and balsamo (a myrospermum) found in every river and rill. Opposite this point we nighted. The air had become "muggy," damp and tropical, like Western India, and, for the first time after leaving Rio de Janeiro, we began to disuse the blanket. I need hardly say that we recalled to mind with regret the charming accidents of the Old Squaws' Stream; the clear limpid air rich in oxygen, the splendid forest scenery of the wild banks, the music of birds and beasts, even the song of the rapid and the fall, and the cheerfulness of nature in general.

September 23.—After an hour's paddling appeared the Barro Alto, a high bank of white clay on the right side where the bed is embayed. We landed a little below it, at the mouth of a Córrego known as the Braúna; it puts forth an under water ridge, extending from south-west to north-east, and ending in what the

* The small or barcas here cost 200 \$ 000; those of moderate size, 500 \$ 000; and the largest (45 × 14 feet), 1:600 \$ 000.

† This Acary stream is not mentioned by M. Halfeld, nor is it in M. Gerber's map. The mouth is about 150 feet broad; the high left bank of yellow clay is garnished

with grass and low trees, and on the opposite side the vegetation rolls almost to the water's edge.

‡ The Rio Pardo drains the Southern slopes of the Chapadão de Santa Maria. Its length is 1° 30', but it is navigable for canoes only twelve leagues.

crew called a "batida," a low sand-bank flaked with mud. Here we found the true diamantine "formação," the Cattivo, the Siricória, in fact all the symptoms, but not the gem. These evidences appear at scattered intervals; the people declare them to be apparently arbitrary, that is to say, the source from which they come has not been investigated.

Beyond this point the stream showed on the left heaps of stone; on the right, thrown out in a relief of bare or blurred line against the blue sky, rose the Serra do Brejo,* which from this point appeared a slope, a broken saddle-back and a lump swelling above the trees and sands. To starboard we passed the Riacho do Peixe, near whose mouth is the small Fazenda of a German settler, Doctor Otto Karl Wilhelm Wageman; further down is the Riacho dos Pandeiros,† whose winding course admits canoes for some five leagues; nearly opposite it the Riacho do Mangahy. The northern limit of the S. Romão municipality showed at the mouth a clump of magnificent trees, and, a little below, a large bed of Cascelho. In front rose the remarkable table-mountain known as the Itabirassába, corrupted to Piassaba;‡ the word is translated "Monte de Fogo." We are evidently approaching an important place; the primitive vegetation disappears, nature begins to look drilled and disciplined, there are kilns, the huts are whitewashed and tiled, and the people offer fish for sale.

After a few features of no great importance,§ we reached a place which we had long seen in the shape of a lumpy line on the right bank, and we ascended a flight of steps cut out by the retiring waters. Here there is a bed of the finest white limestone some 10 feet thick. The place is known as N^a S^a da Conceição das Pedras de Maria da Cruz, and the first edition of the little chapel was built about 1725 by the Paulista Miguel Domingos, after the defeat at the Rio das Mortes in 1708. The mound that

* Brejo do Salgado, which we shall presently visit.

† The Pandeiro is a gipsy kind of instrument—a bow and calabash, derived from Africa. The wild men, as might be expected, greatly enjoyed its music; hence the name has been given to many places in the backwoods. Near this Pandeiros a man lately died said to be 107 years old.

‡ The head man declared, and with truth, that this saddle-back was the Serra do Brejo to the north-east of the former.

§ At noon we passed three islets near the Pernam. bank, and an hour afterwards we saw the Ilha das Pedras, a sandy and shrubby formation, with small clearings and barking dogs. On the bank opposite to it were ledges of Canga; beyond it appeared, upon a base of light-coloured stiff clay, a wall of ferruginous argile, black and red, pudding'd with pebbles, varying in thickness from one to nine feet, and thinning off from north to south.

supports it had an old and remarkably good "ladrilho," or tile pavement, which commands a magnificent view. The river, broken by sand-bar and island, sweeps nobly from south-west to west, and at this point trends nearly due north. The wavy bank in front is clothed with immense trees, and about eight miles distant the western horizon is closed by the quaint-shaped Itabirassába, towering high above its chain.

The population of the little hamlet was scattered about in low huts of wattle and dab, thatched or tiled. Some of the women working the old pillow-lace were hardly clad with decency, and on the bank was a yellow girl with unveiled bosom, as if she had been in the Bight of Biafra. All, however, are more or less tinged, and here, as elsewhere, the brown buff simulates dress. Goats wandered about the bush, and seemed to enjoy the shiny, succulent leaves of the gigantic croton shrub, which grows to an abnormal size. This *Jatropha Curcas** of many names supplied the physic nut for the Lisbon lamps, and thus for a time preserved certain of the Cape Verde Islands from starvation. It has an extensive range. I have seen it at altitudes between the seaboard and 3000 feet. The Guinea negroes administer with excellent effect the green seeds together with the pulp; the dose is, I believe, a quarter of the nut boiled in water, which is drunk. † Half-dram doses used to be given in the Brazil, but the "physic-nut" is now neglected, as it is a dangerous, and has proved a fatal, drastic. As the rains begin, everywhere sprouts a pretty pink flower somewhat like a primrose, solitary, and capping a thin anther; stalk about one foot high; the people call it "Cebolão," or the poison-onion, and declare that cattle will not touch it. On the higher banks, where the floods do not extend, grow the Solanaceous *Juá*, still bearing the last year's blackened berries; the organ cactus; the Pitombeira (*Sapindus edulis*), a large tree with an edible fruit; the Pinguí, here called *Imbárú*, and the shady *Aroeira de Minas*, also known as *Capicurú*. The latter resembles the *Melia Azadirachta* of Hindostan, but the leaves are not bitter.

* Here it is popularly known as "pinheiro de purga," or "pinhão do Paraguay." The Tupy dictionaries give "Mandubi-guaçu" (the great ground-nut, or *Arachis*), a mixture of African and American terms. Labat has "Medicinier" or "pignon d'Inde," and when describing its effects, he offers sensible advice to tra-

vellers—namely, not to eat unknown fruits which birds refuse.

† In Africa the unripe pulp, duly prepared, is, I believe, also taken as a strong medicine.

‡ In other parts cattle are, they say, poisoned by it.

As we advanced, the long reach, running nearly due north, bent to the north-east and showed in the far distance a whitewashed chapel and three large double-storied houses. On the left was the *Ilha do Barro Alto*, a long "steamboat island." We were obliged to round the large, flat sand-bars before we could make the *Porto do Brejo do Salgado*, the channel above the town not admitting even our raft. This is the most important place on the Upper Rio de São Francisco, and its only rival is *Joazeiro*, distant 190 leagues down-stream. The site is a dead flat on the left bank, distant four to five miles from the *Serra do Brejo*, a broken line to the north-west and north. A certain *Maciel*, of whom more presently, here built a chapel of brick and lime, the people assembled round it, and the Bishop of Pernambuco sent a curate, the *Padre Custodio Vieira Leite*. The principal settlement however was inland, at the base of the hills, and this *povoação* or hamlet on the river side took the name of *Port of the Salt Swamp*, abbreviated to "*O Salgado*," "*the Salted*," and this the people insist upon retaining. Of course the two settlements were rivals and enemies. In 1833 the *Port* became the "*Villa da Januaria*," christened after the sister of the reigning Emperor; in 1837 the honour was transferred to the *Brejo* inland; in 1846 it was re-transferred to the *Port*; in 1849 it again moved to the *Brejo*; and finally, in 1853, it settled upon the *Stream*.* The water side objects to the hill side that it is too far from the seat of trade; the hill side retorts that at least it is in no danger of seeing even its saints swept into the river. The municipality, which is large, and contains a considerable extent of uncultivated land, numbers five districts, namely, the *City*, the *Brejo*, *Mocambo*,† *Morrinhos*, *São João da Missão*, and *Japoré*, the latter distant about 20 leagues.

We had to fight hard against the strong current, which now shows signs of incipient flooding. We passed the tall *sobrado* of the *Capitão José Eleutherio da Souza*, fronted by a dozen stunted and wind-wrung palms, and a slope of *Capim ussú* (the big grass) stretching down to the stream. The herbage is of a metallic green, like young *Paddy*. It is not destroyed by the

* According to the *Almanak*, the parish was created by Royal resolution of January 2, 1811, and the *Port* was made the *Chef-lieu* by Provincial Law No. 288 of March 12, 1846.

† Much of the land in the *Mocambo* has no proprietor, and its admirable fertility

suggests colonisation. Here the best land is worth at most 500\$000 per league, not, however, a square league, which would be nine geographical miles, but half a league each way. In these matters there is no regulation, and each man adopts his own system.

inundations, and cattle will eat it. The Port is formed at this season by two sand-bars fronting the left bank. It has been proposed to remove them, but the best authorities are agreed that they defend the side, to which a strong flood swings during the rains. The river is now upwards of 3000 feet in breadth, and the weight of water does far more damage than the superficial washing. It will not be easy to save the place; about twenty years ago half of the Rua do Commercio, the "water street," became the stream-bed. A few stakes have been planted to act as grains, and a stockade of tree trunks defends the sloping bank of sandy clay, perilously near whose edge runs a line of low, whitewashed, and red-tiled tenements. The principal danger is above the city, where a small channel admits a vast influx of flood water. Here it would be easy to throw up one of those levées with which we dyked the Indus near Hyderabad.*

We found in port a number of canoes and eight barcas made fast to the usual poles. The praia, as the bank is here called, at once recalled to mind the African market, and the monotonous chaunt of the negroes measuring beans did not diminish the resemblance to the scenes of distant Zanzibar. Women, now far more numerous than men, washed at the water-side, or carried their pots to and fro; the boys, more than half-nude, squatted on the sand-bars on tree trunks, or in their dug-outs, bobbing for daily bread. The dark boatmen, clad in the sleeveless waistcoat (Jalé or Camisola), and the cotton-kilt (Sayote) of the Guinea Coast, stroll about or lie stretched upon the slopes playing with the splendid and majestic Aráras,† which they have brought from down-stream, and whose plumes glittered in the sunshine. On the more level ground were planted seven shed huts of poles, mats, and hides. Here the merchant who disdains to hire a house exchanges his salt and cloth for provisions and supplies.

* In making these levées, it is well to dig a trench, and carefully to remove tree roots, and everything that can assist percolation. The dyke should have a base of 3 : 1.

† Ará, I have remarked, is a parroquet, or parrot; the augmentation ará-ará contracted to arára in the large psittacus. It is regrettable that we have not adopted this pretty onomatopœia, instead of the grotesque half-bred Spanish macaw, and vulgarized the scientific "Arainæ."

The common wild varieties here are the

Araruna (Ararauna) and the Arary, also termed Canindé, or Arara Azul. The former (*Psittacus hyacinthinus*), as its name denotes, a black, or rather a dark-purple bird, of smaller size than usual; it flies in pairs high, with loud screams, like the parroquet. The Arary (*Psittacus Ararauna*) is the well-known and magnificent bird, with a coat of the brightest blue, and a golden waistcoat. St. Hil. (I. ii. 376) notices the error of Marcgraf, who gave the name Ararauna, which means black or dark macaw, to the wrong bird.

When we had slipped into place I sent up my card and introductions to Lieutenant-Colonel Manoel Caetano de Souza Silva. Januaria showed her civilisation by crowding to inspect us with extreme avidity. A very drunken youth, with teeth chipped into feline shape—here fashionable—addressed Agostinho as “moleque” —small slave boy—very offensive to a big slave boy, and a “row” of the mildest nature ensued. Another stole an “Engineer’s Pocket-book,” and offered it for sale to a Portuguese, who at once returned it to us. The police authorities took no notice of the theft, perhaps because the robber was half silly with liquor, and consoled us with the intelligence that we might expect to be extensively plundered down-stream. This, however, was not the case; Januaria was the only place where anything of the kind was attempted.

We were soon rescued from the situation by Sr. Manoel Caetano, who, accompanied by some friends, invited us to inspect the city. I greatly enjoyed the view from the bank summit. To the west the purpling hills were faint as clouds floating upon a sea of ruddy haze, the last effort of day. In front lay the River Valley, at least twelve miles broad, and suggesting a vast expanse of water during the floods. About two leagues distant rose the Morro do Chapéo, curiously shaped like a Phrygian cap; it is an outlier of a long broken wall extending from north-east to south-west as far as we can see. This Serra dos Geraes de São Felipe is exceptionally rich, and supplies the river with lard, tobacco, and maize-flour. Its remarkable points are the Urubú peak, from this point a regular pyramid, the Serra das Figuras, the table-shaped Morro da Boa Vista, and the three round heads known as the Tres Irmãos.

The N^a S^a das Dôres is rather a chapel than a church, and at times, they say, fish have been caught in it; the building is fronted by a tall cross, enclosed in a dwarf square of short wall. At the other end of the settlement is a N^a S^a do Rosario blown down by the wind, and still unrepaired. The streets are floored with sand, and in places there are strips of trottoir, slabs of the fine blue limestone from the Pedras dos Angicos. Trees require a soil less lean; each house has its “compound,” walled or staked round, but the largest growth is the papaw, and a palm here called the “Gariroba;” * it is a tall, dull-brown stick bear-

* Or Guariroba (*Cocos oleracea*, Mart.), a palm commonly found in the stunted growths of the Sertão.

ing small ragged fronds and a raceme of edible fruit about the size of an egg. The thoroughfares are straight, but as usual too narrow; their names are carefully inscribed upon the corners, showing that the Camara does its duty, and the tenements are numbered. The Praça das Dôres contains the jail, with barred windows, where guards and sentinels loll and loaf, and near it the humble Guildhall. A hospital is much wanted; we met in the streets many cripples.

The total of houses may be upwards of 700, of which at least a fifth are Vendas. In 1860, the famine-year of Bahia, the population numbered 6000 souls; five years ago it declined to 4000, and now it may be 5000, slaves included. For some time past the serviles have been traded off to Rio de Janeiro, and, only lately, thirty head were sent down country. The city is supported by brokerage and the carrying trade. The Quattro-Maôs* of the backwoods bring in a very little cotton, a quantity of sugar and rum, excellent tobacco and provisions, especially hill-rice and manioc, which flourish on the table-land beyond the riverine valley. Fine canoes of the best Vinhatico and Tamboril, † forty feet long here, cost 100\$000, and are sent down-stream, where large trunks are rare. The imports are chiefly viâ Joazeiro, which the people place at a distance of 220 to 240, instead of 190 leagues; they are chiefly dry goods and salt. Those who have not visited the inner Brazil will hardly imagine how necessary to prosperity is this condiment. It must be given to all domestic animals, cattle, mules, and pigs; they convert into "licks" every place likely to supply the want, and even crunch bones to find it. Without it they languish and die; in fact, here the desert may be defined as a place where salt is not. A popular succedaneum is oil and gunpowder, and even this is found better than nothing. In 1852 the mule load of eight arrobas from Rio de Janeiro (200 leagues) ‡ viâ Diamantina, paid 45\$000; it has now risen to 15\$000 or 16\$000 per arroba, nearly three times the price. Consequently the capital sends only "notions" and "objects of luxury." Bahia (186 leagues) adds hides and salt, pottery, ammunition, and iron-ware; the price of conveyance varies from 12\$000 to 14\$000 per thirty-two pounds. Goyaz, like the

* *Quadrumana*: here the word is used in the sense of *Caipira*, country bumpkin.

† A large leguminous tree. St. Hil. (I. ii. 331) writes the word "tamburi," according to the pronunciation of the

Sertanejos.

‡ The distances are those given to me by my friends at Januaria. They made Diamantina 70 leagues distant, and Lençoës 76 to 80.

Geraes * lands on both sides of the river, supplies stock and provisions, "doces," cheese, and a little coffee and cotton; some of them produce a small quantity of wheat. "Colossal fortunes," says the Almanak, "are rare," but there are men worth upwards of £4000, and money here breeds safely 24—36 per cent. per annum.

Our host was a distinguished "Liberal," who prefers politics to trade or farming; he is made well known throughout the country by a greater generosity than is usual. He offered us the novelties of absinthe and cognac, he compelled us to sup with him, and he placed his house at our disposal. For liberty's sake I preferred the raft, also to escape from the screams of the children, which, throughout the Brazil, form the terribly persistent music of the home. The mothers, I presume, physically enjoy being noisy by proxy, the fathers do not object, and thus the musicians are never punished. Indeed you are considered a "brute" if you object to losing a night's rest by a performance, which could be settled in a second. The only place where the shriek of woman and the scream of babe are silent is, I believe, the Island of Madeira.

Sr. Manoel Caetano gave an invitation to visit him at his fazenda, where he intended to sleep, and promised to send animals at daybreak on the morrow, but apparently the light at Januaria dawns after 9 A.M. We, therefore, set out on foot under guidance of Sr. Candido José de Senna, ex-Professor of First Letters. The path led to the north across an inundated flat, which appears likely to disappear, and a line of mist showed the Corrégo Secco, that requires the levée. During the rains it is a flood, now it retains water-pits (poçoões) frequented by washer-women. Ahead, and a little to the left, lay the table mountain, up which men have ridden; at its foot is the fazenda of the Capitão Bertoldo José Pimenta, and near the summit, they say, is a natural well.

After walking a mile we made rising ground, and exchanged white sand for ruddy soil rich with humus. Here even the floods of 1792-93, which rose thirty-eight and a half feet above the mean level of the stream, did not extend. In 1843 there was another inundation, when a Surubim was caught in the church, followed

* In these parts the Geraes are generally named after their streams; *e.g.*, Geraes das Palmeiras, do Borachudo, &c.

by a third in 1855. In 1857 the citizens took refuge here, and spent several days in picnics and jollity. It is called the Piquizeiro,* from the abundance in former times of the wild Caryocar tree, and it will probably become the left bank of the Rio de São Francisco. Evidently this is, even now, the fittest place for the settlement, which a line of wooden rails would easily connect with the Port; the air is cooler and healthier, water abounds, there is plenty of building-ground, and the soil behind it is loose and red, excellently adapted for cotton and sugar.

A scatter of huts is springing up around the Piquizeiro, where a new cemetery has been laid out. Our host dug a leat to supply the builders with water, and the place is strewed with adobes and fine slabs of blue limestone. A tall cross of cedar bears a little cross and the legend "Salus. P. R. G. C. 1867." This was lately set up by Fr. Reginaldo Gonçalves da Costa, a vicar detached on a missionary campaign from his cure near Montes Claros by the Bishop of Diamantina. He collected a copper from the poor and a testoon from the rich. Some 6000 souls, mostly feminine, strewed the plain as he doled out the Bread of Life, and the fireworks which ended the day are described as having the effect of a volcano in full blow. Januaria had lately been visited by a convert, pervert or divert Spaniard, in the pay of a certain Bible Distribution Society. When I was there he had left to raise more grist for the mill at Rio de Janeiro; and he had bequeathed to a Portuguese clerk the work of conversion, perversion, or diversion. The priests down-stream were much scandalized by the distribution of "false Bibles," and I could not but sympathize with them, knowing how easily in these countries the local mind is unsettled by a small matter. Surely it will be time to Protestantize the world when it shall have been Christianized. Similarly the missionary † and the mis-

* According to Arruda, the "*Acantocarix pinguis*;" the tree prefers the sandy soils of the *Taboleiros* and *Chapadas*, where the growth deserves all encouragement. Its height is fifty feet, with proportional girth; the timber is good for boat-making; and the fruit, as large as an orange, supplies an oily, farinaceous, and very nourishing pulp, much enjoyed by the people of *Ceará* and *Piauh*y (*Koster*, ii. pp. 486—7).

† The *Saturday Review*, when noticing a book which I wrote after my return from *Dahome*, remarked the use of the word

"Missioner." The Reviewer did not remember that of late years "Missioner" has been adopted by the (Roman) Catholic, in contradistinction to the Protestant "Missionary." Perhaps it would be more anthropological to call the former the phase of faith at present adopted by Southern Europe, opposed to the young Church which belongs to Northern Europe, and to the Greek Church, as old as the oldest which prevails in semi-Oriental Eastern Europe. Similarly we observe in *El Islam* that certain unimportant articles of belief — unimpor-

sionary, Jesuit and Church of England, have been let loose upon Abyssinia, whose church dates from the third century, and doubtless resembles the primitive form far more than those of Rome and London. A few massacres have been the direct, and an Abyssinian campaign the indirect, result of the merciful interference. Meanwhile, until quite of late years, the Galla accolents have been left in full enjoyment of their savage fetishism.

Revenons ! After a walk of four miles we reached an admirable grove of mangos, perhaps the finest that I have beheld in the Brazil, lining the approach to our host's property, the Fazenda de Santo Antonio do Brejo do Salgado. It is on the right bank of the Salgado, or Salt Rivulet, which rises in a pretty plain, the Fazenda da Carahyba, and which feeds the São Francisco a little below the settlement, to which it gave a name. Here it breaks through the Boqueirão, a gap in the Serra do Brejo, where it acquires a cooling and salt-bitter flavour, which argues saltpetre. When floods in the main artery block up the mouth, it can be ascended by canoes, showing that the channel could be converted into a canal. The people avoid drinking the water, as it is highly laxative ; and after using it strangers must check the effects with an orangeade made of the sweet, fade and medicinal "laranja da terra." * In two years it has deposited on the wooden watercourse which turns the turbine, a coat of calcareous matter about three inches in thickness. Its lime and salts give a wondrous fertility to its little valley, the richest spot that we have yet seen on the Rio de São Francisco ; and during the whole journey we shall see few that equal it.

Amongst the Mangos I detected by its circular crown of fronds an old friend in the other hemisphere, the Cocoa-nut, here called Cocos da Praia. It was a fine tall and lusty specimen of the Cocos nucifera, hung with sixteen nuts. The tree is plentiful along the coast from Rio de Janeiro to Pará ; † except, however,

tant because neither the Koran nor Tradition has pronounced upon them — are adopted by one school of divinity because the rival school has preferred another view. "Ragban l'il Tasannun"—in hate against the Sunnis—is the Shiah reason for adopting some of its minor usages.

* The perfumed flower of this country orange is much admired by the humming-bird. I was here told that the fruit becomes bitter or tasteless, unless periodically refreshed by grafting, and they showed me orange-trees six years old, but still barren.

St. Hil. (III. ii. 409) says of Salgado, "Cette bourgade doit son nom à l'un de ses premiers habitans, et non, comme on pourrait le croire, à la qualité, un peu saumâtre, de ses eaux." This is, I believe, a mistake. Pizarro has explained the origin of the term correctly ; he remarks that the waters are stomachic, deobstruent, digestive, and capable of healing or diminishing goitres.

† It must be remembered that the Cocos nucifera was not found in the Brazil by the earliest explorers.

upon the river sides, it wanders but a short way inland, justifying the popular belief that it requires sea air. Here a bee-line to the Atlantic measures 350 miles, and we shall find it extending in patches all the way down-stream. The largest plantation is at the Lugar da Aldêa do Salitre, seven leagues south-west from Joazeiro; the fruit is exported by Dr. Joaquim José Ribeiro de Magalhaães, who preferred farming and road-making to being a Desembargador in the Relação of Maranhão. Both these places have saline or saltpetrous waters. The *Coco da Bahia*, as it is also called, is found, however, in many spots where the ground, possibly an old sea-bed, supplies the want of sea air.

The host led us into his garden, and showed us, embedded in the soil at an angle of 45° , a semicircular fragment of "Cavitaría," the true white and black granite of Rio Bay, two feet broad, two and a half long, and three deep. The sides had been chipped, and the face had been used as a grindstone. An old Quattromão declared that the Geraes had whole hills of such rock, but no one believed him. It had probably been brought from down-stream, and about Joazeiro we found the formation common. The energetic Netherlanders, it will be remembered, built a Fort Maurice at the mouth of the São Francisco, and plundered Penedo; it is more than probable that during their Thirty Years' War in the Brazil, they visited the upper stream. So M. Halfeld remarks that the floods of 1792 laid bare in the river bank several tiles more than a foot long each way, and five inches thick. He believes them to date from the age of the "Hollandezes."

The plague of the garden is the "Cupim," and nothing but the plough will remove it from the rich fat soil. The coffee planted under the shade of the mangos or luxuriant jack-fruit trees, appeared to be subject to the caterpillar; not so the leaves exposed to the sun. We saw a single tree dating from 1828, and were told that during its best days it had borne fifteen pounds per annum. The sugar-cane was remarkably fine, and once planted it lasts almost through a man's life. The arrowroot (a *Maranta*) grew well; the *Guandú* pea was common, and there was a large grass whose dried root much resembled patchouli. The flowers were the perfumed "Bougarim," suggesting a white rose, lilies, gigantic snowy jasmynes, and the "bonina," a kind of "pretty-by-night."

To the north-east we saw the solitary steeple of *N^a S^a do Rosario* gleaming against a green hill. South of it were the tiled

roofs of the Barro Alto, a fine plantation, and behind them lay the "Boqueirão" estate, as well as gap, where the Church of Santo Antonio, built by Maciel, the Adelantado, lies in ruins. To the west-north-west peeped the summits of the Matriz do Amparo, the mother of Januaria city. And the background was the Serra do Brejo, pillared with cactus, capped with thin bush, and walled with banded grey cliffs of a stratification so regular as to resemble art, and stained here and there with a bright ferruginous red.

We then visited the sugar-house,* which had poor machinery, but an excellent article to work upon. Instead of troughs there were Jacás, cones of bamboo, each containing four bushels, and purging into pits below. Good mules were straying about the grounds; the natives cost 30\$000, and those driven from the Province of Rio Grande do Sul, viâ Sorocaba and S. Paulo, a two years' journey, fetch 50\$000 to 60\$000. A "Jack" showed that breeding is here in vogue; further down the river asses become common. Flesh is not plentiful, and a cow of the small Raça curaleira, which gives good meat, commands 8\$000 to 10\$000. The "Curios" shown to us were broad-brimmed hats of the Imbé Vermelho, an Aroid used like the African "tie-tie;" its fibre takes a good colour; the leather clothing was soft as cloth; there were stout cottons, and woollen stripes and checks, worked by the women of Tamanduá, and stained with indigo, and a powerfully drastic cucurbitaceous plant known as the Bucha dos Paulistas.† We breakfasted at the usual bucolic hour, 9 A.M., preferred to Lisbon wine the "Minas wine," *i.e.*, Restillo, and the peculiar cheese Requejão,‡ which here always accompanies coffee. We ended with Januaria-made cigars; the tobacco came from the hilly Geraes three leagues to the north-west of the city, and the

* The whitest sugar in Januaria came from Pitangui (120 leagues). It would easily have been crystallised, and moulded into loaves. I suggested the use of animal charcoal; but who will take the trouble to make it when clay is found ready made?

† Literally, the gun-wadding of the Paulistas. The specimen showed to us was a fibre containing dark oleaginous seeds. About one square inch of it is steeped in water over night, and drunk in the morning as an emetic, &c., by those who suffer from paralysis ("ar," or "stupor") induced by river fever. The System asserts that in

S. Paulo it is known as the Purga de João Paës (*Momordica operculata*), and alludes to its various uses. We also heard of a smaller variety, said to be even more violent in its action, and the plant was described as resembling the Passion-flower. It is probably the Buchinha, or Luffa purgans, whose extract is used as the coloquintida.

‡ In making Requejão, the milk is curded, as if for cheese, and butter and cream are afterwards added. It lasts for two years, and is still soft.

leaf costs 3\$000 per bushel; the cigars are retailed at a half-penny each, and they are better than many "Havannahs."

Finally, we mounted neat nags, and taking the western road, which goes to Mato Grosso, visited the venerable Arraial do Brejo do Salgado. It lies at the eastern foot of the Serra, which gives the air some similarity to the breath of a hothouse, and the curious limestone blocks were reeking with heat. The hamlet now consists of a sprinkling of houses round a square, whose centre is the Church of N^a S^a do Amparo, remarkable for nothing but red doors of solid timber, with tall bosses. Adjoining is a stone box with barred windows representing the jail, and a tall tiled roof, wanting the finish of walls, showed that it did not need enlargement. The people were yellow from eating fish and manioc.* Amongst them was a Polish Jew, Moses Mamlofsky, who did not speak in flattering terms of his new home; he had been in partnership with a German co-religionist, Samuel Warner, who called upon us at Januaria. The latter called himself a New Yorker; unfortunately he could not speak English; twenty years ago he settled in these parts, made money, and spent it.

The glory of the Brejo was the Conego Marinho, before mentioned as the historian of the movement of '42. He was equally distinguished as a liberal, an orator, and a statesman. We called upon several of the notables, who exhorted us strongly to visit the Lapa de Santa Anna, distant two leagues. Here the old conquerors found, or by vivid fancy thought that they found, stone crosses cut by the "Indians," statues of Saint Anthony, and so forth.† We heard, also, of another cave, in which a rocket could be fired without striking the ceiling; perhaps some more leisurely traveller may find it worth his while to inspect these places. At the Brejo we were told the romantic tale of its origin. When Manoel Pires Maciel, the Portuguese explorer, was descending the river, he attacked, on the Pandeiros influent, a powerful kinglet, who governed 120 miles of country between the mouths of the Urucua and the Carunhanha streams. The redskins fled hurriedly, and the chief's wife hid her babe under a heap of leaves, as the

* They are not, however, a short-lived race. Our host's father, aged 81, rides like a man of 40, and the vicar, Padre Joaquim Martins Pereira, is still vigorous at the ripe age of 77.

† I will not positively assert that all was fancy. The Eastern Coast of South Ame-

rica, long before the age of Saint Columbus, was doubtless reached by Europeans and Africans, possibly by Christians, even as the western shores had Asiatics occasionally driven to them. I shall reserve the grounds of my conclusion for a future volume.

cayman is said to conceal its young. The Conquistadores' dogs found the pappoose, who was christened Catherina, brought up as a Christian, and finally married by her capturer. She bore to him two daughters, Anna, who settled with her husband João Ferreira Braga, upon the Acary River, and Theodora, who became the wife of Antonio Pereira Soares. The name of Maciel has been merged into that of many Portuguese houses, Bitancourt, Gomes, Morenas, Proenças, and Carneiros. Catherina's issue now forms a clan of 4000 souls, whose coal-black hair, brown skins, and sub-oblique eyes, sometimes "bridés," still bear traces of this Brazilian Pocahontas.

We returned to Januaria delighted with our visit, but justly anticipating some trouble in collecting a crew. The Guaicuby men positively refused, despite liberal offers, to proceed; they were, doubtless, anxious to look after their wives. Sr. Manoel Caetano and his brother-in-law walked with me all about the city, and found that six of the barcas desired to start, but wanted hands. Many of the barqueiros had been carried off to the war, others had fled their homes, and some declined to leave the city, lest they might be enlisted in a strange land. Moreover, this is the season, as we were warned by the fiercely howling wind, which swept up the water from the Bahian shore, when the fields must be made ready. Finally, there is no actual poverty in this part of the world; the pauper has at least a cow, and a mare to ride, with unlimited power of begging or borrowing food from his neighbour; consequently, he will not work till compelled by approaching want. Those who did consent coquetted, demanding, at least, three days' delay, and one fellow, free, but black as my boot, could not start without his boiled shirt.

From Januaria to Joazeiro the hire of a barca is 1\$000 per diem, and the barquemen are usually paid 14\$000 a head, a poor sum, but the diet is some consideration. It was vain to offer 20\$000, of course including tobacco, spirits, and rations. At last I closed with a pilot and a paddle-man, who demanded 35\$000 and 30\$000. My excellent friends had sent on board everything necessary for the long journey,* and we determined to

* The provisions bought at Januaria	Farinha	1\$280
were :—	6 medidas of rice	1\$920
32 lbs. roll tobacco	5 lbs. meat	0\$600
20 Rapaduras	Quarta of beans	2\$000
Demijohn of Restillo		<hr/>
Lard	Total	19\$500

set out at once. There was an ugly frown upon the forehead of the western sky, thunder growled, and lightning flashed in all directions. The new crew shook their heads, and I began to fear the loss of, at least, half the next day. However, they took heart of grace, and we pushed off, to make fast a few minutes afterwards near the ruins of the Rosario.

We shall miss the frank and ready hospitality of Januaria as we advance, and going farther we shall fare worse in the little matter of reception. The change will make us think more often of the kind-hearted and obliging Lieutenant-Colonel Manoel Caetano de Souza Silva; of his brother-in-law, Capitão Antonio Francisco Teixeira Serrão; of the Promotor Publico, Luis de Souza Machado; of Gonçalo José de Pinho Leão, and others who took so much interest in the passing strangers.

CHAPTER XVIII.

FROM JANUARIA TO CARUNHANHA.

THIRD TRAVESSIA, 30½ LEAGUES.

THE VILE WEATHER.—REMAINS OF THE RED-SKINS.—THE HAMLET AND LARGE CHURCH OF N^A S^A DA CONCEIÇÃO DOS MORRINHOS.—DECAY AND DESOLATION.—THE MANGA DO AMADOR SETTLEMENT.—THE SONG OF THE BIRDS.—THE RIO VERDE, A SALT STREAM.—THE CARUNHANHA RIVER.—THE MALHADA SETTLEMENT AND ITS RECEIVERSHIP.—LIEUT. LOUREIRA.—VISIT THE VILLA OF CARUNHANHA.—DON RODRIGUES.—VILE NIGHT.

Ergue-se sobre o mar alto penedo,
Que huma angra á raiz tem dos náos amparo,
Onde das ramas no intrechado enredo,
Causa o verde prospecto hum gesto raro.

Caramurá, 6, 18.

It was an abominable night. The storm, as often happens in the Brazil, assumed the type of a Cyclone, passing round from north viâ east to south, and about the small hours I thought that the “Eliza’s” awning would have been beaten down by wind and rain. The new men, both now and afterwards, proved themselves real watermen; they talked much, but they worked more, and better still, neither of them drank, nor had “sarnas.”* The pilot, José Joaquim de Santa Anna, officiates in a black coat; he is silent and dignified, rarely consorting with the barquemen. Of very different temper is Manuel Felipe Barboza, who rejoices in the cognomen “das Moças,” or “Barba de Veneno;” he sings, he roars, he improvises Amabæan verse; he chaffs like a bargee, and the fluency and virulence of his satire have made this “repentista” † celebrated as “the Poison beard.” Yet he has

* The “Indians,” from time immemorial, used to treat their “sarnas” by extracting, with a pointed thorn, the *Acarus* (an Arachnid) which produced it. The psoriasis is very common amongst the boatmen of the São Francisco, but they have never adopted the wild system of healing it.

Some are loathsome objects, with blotched and mottled skins, even after the sores have become scars. As on the Lower Congo, the disease is highly infectious, and very difficult to cure; in fact, many declare it to be incurable.

† An improvisatore. I need hardly say

not ignored the main chance, and he expects to make money by investing capital in water-gugglets, straw-hats, and bricks (tijolos) of orange and other sweetmeats, which he will sell down-stream.

Thursday, Sept. 26, 1867.—The evil weather produced a start at 5 A.M. After passing some uninteresting spots * we were on the parallel of the Mocambo, which has been mentioned as one of the districts of Januaria. Beyond it, † on the left bank, rose the Morro do Angú, and its long sandy and partially cultivated island; the heights are apparently an offset from the Serra do Brejo, a scrubby lump with scarped walls of grey and red-stained limestone. Presently the rain and thunder, coming from the north, drove us for refuge into a narrow channel formed by a “steamboat island,” near the right bank. The hurricane proved a mere “peta” or feint, and after losing half-an-hour, we resumed the way and presently anchored on the Praia do Jacaré, opposite a small Arraial of the same name. We are now careful to take the windward or Bahian bank, and to avoid the vicinity of tall trees. To its north rose the Pico do Itacaramby, ‡ a term which none could explain; early in the day it had appeared to us like a tall blue pyramid. Here we found it to be the southern buttress of a line of scattered hills that trend to the north with easting. The low cone presented a curious appearance, the colour was somewhat darker than the slaty back-ground of lowering sky, and it seemed to vomit grey puffs of heavy mist, which formed conducting lines of electrical vapours girding the nimbus cloud.

Sept. 27.—The new moon brought with it for a time heavier

that the practice comes from Portugal, where the “justa,” or trial of strength, is still popular amongst the peasantry. Here it met the “Indian” blood, which had also the habit of making impromptu chaunts.

* The Ilha da Boa Vista on the right; the Ilha de Rodador, fronted by houses, and the Vendinha islet, on the left.

† The Barra do Páu Preto, a small yellow stream from the right; the Fazenda and large island of Amargoso; and the Varginha, which showed a tiled house. After noon we passed the Ilha do Jatobá, a buttress lying to the left of the stream; at the bottom of the sack, the Arraial do

Jatobá, fronted by canoes, and composed of mud and tiled huts, faced the river, which here must flood the banks.

‡ St. Hil. (I. ii. 24) mentions a Fazenda de Itacorambi, and derives it from “ita,” a stone, and “and carambui,” small and pretty; certainly not applicable here. A better explanation is that given to him by a Spaniard of Paraguay, well versed in Guarani: “itaacábi,” a mountain divided into two branches. Pizarro believes that this place was discovered in 1698 by the Paulist Captain Miguel Domingos: St. Hil. (I. ii. 303) attributes it to Fernando Dias Paes.

weather, and the air was wet and soppy. Presently the west bank showed a broad sandy ramp, the road to São João das Missões (or dos Índios), distant from the river three leagues, and the object of a great Patron (Romaria) on its Saint's-day. Here, removed eighteen leagues from their old home—the beautiful Brejo do Salgado, a savage paradise—are villaged the remains of three great tribes, the Chavantes, still powerful on the head waters of the Tocantins; the Chacriábas (Xicriábas), and the Botucudos or “bung-lipped” races, an indefinite general name. Of old the Geraes hereabouts were held by the Acroás, vulgarly known as the Corôados or tonsured people, the Cherentes, and the Aricobís, who were dangerous till 1715. Now the nearest of the wild “Red-skins” are about Moquem,* in Goyaz, distant some 125 leagues.

After a succession of the usual features,† at 1:30 P.M. we saw Cascallo on the right bank, and washerwomen, the usual approach to a town. We ascended a natural ramp, and fell into a kind of street much broken up by the waters; thence turning to the right we made the large square with its tall central cross, the beginnings of a second. Here the inundations have never extended. On the north there is a Casa da Camara, whose shutters are shut, and a jail whose grating is open. The twenty-one houses, including two ruins, are of the humblest, and down-stream are two parallel lines of thirteen to fourteen huts. The eastern side of the square is occupied by N^a S^a da Conceição dos Morrinhos, which gives a name to the place. It is a “delubrum miræ magnitudinis,” which enjoys a wide reputation, and which makes the stranger inquire how it came here. It owes its origin to the piety of a certain Mathias Cardozo, before mentioned, who, with his sister Catherina do Prado, married in São Paulo to a Portuguese, settled in the wild, and for his services against the “Indians” obtained the rank of Mestre de Campo, a dignity to extend through three generations. He, and after him his son Januario, built, of course by the sweat of “Indian” brows, the fane, and the latter sent to Bahia for masons and carpenters.

* I have explained this word (and its verb *moquear*), which the author of the *Caramurú* defines as follows:

Chamão *Moquem* as carnes que se cobrem,
E á fogo lento sepultadas assão.

This is our “grushen.” The term, however, is also applied to meat smoked or

slightly exposed to the flame.

† The Ilha do Capão, where M. Halfeld places a village; opposite it, on the left bank, the Fazenda da Barreira (H., As Barreiras). Then the sandy islet and Fazenda da Resaca (H., Resacca) made us take the left side.

The temple, facing a little north of west, rises from a platform of fine bricks, 1 span 4 fingers long, and 2 inches thick; these and mortar compose the building.* It might easily have been made of stone, as massive calcareous blocks appear bald-headed above the ground. The façade has the usual pediment, protected by eaves with three rows of tiles, an attempt at a rose-light, and shuttered and railed windows above and below. Between the two latter is the gate, with massive doors, strengthened by large round-headed nails; it is apparently never opened, and signs of fire appear near the floor,—bits of crosses, strings of beads, and decayed scapulars hang about it. The towers are massive, and capped with whitewashed pyramids like those of São Bento in Rio de Janeiro. The brickwork, however, is falling from above the windows, and poles planted against the front show that repairs are in prospect. On the northern and southern sides are fragments of cloisters, arches supported by six large square piers; both end towards the east in rooms intended as sacristies. Outside the mortar is green with damp below, and stained red by the ochreous earth above. Inside, the northern cloister is heaped with sand and goat-dung; opposite it the bulges of red clay dotting the floor betoken graves, a bier also lies under the arches, and a broken coffin is propped against the wall.

We had some trouble to procure the keys; at last appeared the sacristan with the normal "tail." The interior was worse than the exterior; the ceiling was partly stripped of its cedar boardings, the choir was ruinous—here decay generally commences, and the pulpits were likely to fall. The four side-chapels in the body of the church resembled portable oratories. A bold and well-built arch, revetted with fine wood and railings of turned Jacarandá, led to the high altar, which did not show any signs of gilding or whitewash. Below it a broken slab of slate from Malhada, bore inscribed:—

AQVI IAS
JANVARIO C
ARDOZO DE
ALMEIDA.

The date had been forgotten, and the sacristan could only tell

* Not "templo de pedra," as M. Halfeld has it.

us that at Morrinhos had lately died, aged 113 years, a man who said that the tomb was there when he was born.

We ascended the little hill at whose western foot the fane lies. The substance is blue limestone, in places banded with hard quartz, and capped with agglomerated sandstone; the soil stained with oxide of iron produces the red blots which marble these lumps. Formerly the Morrinho supplied saltpetre; it is now either exhausted or neglected. From the thorny summit we ascertain that the left bank is of similar formation, and even more subject to floods. Here we count four knobs of ground, the Morros da Lavagem, do Salitre, and so forth.

The smoky mists rising above a floating tree that left foam in its wake, formed a phantom-ship, which startled us by its resemblance to an expected steamer.* Descending on the right of a long island, the Manga do Amador, we saw the village of that name, advantageously situated upon the "Pernam side." It is the first unflooded settlement which we have seen on the high Saõ Francisco, and the superiority of site will tell in future years. Two barrancos or bluffs rise at least 100 feet above the brown tree-dotted bank, and are divided by a deep gulley, draining a bayou behind the village. The colour is a deep red earth—the finest of soils—extending down to the white clay of the water-side. I counted seventeen doors on the northern summit, and the settlement though young was not without ruins.

After a last hour's work we found anchorage ground near the Ilha do Carculo. Towards night we viewed the stars and planets like the faces of long-absent friends. The "wander-lights" † flashed through the darkness of the trees, the gull screamed at our intrusion, the bull-frog (*Sapo boi*), and the Cururu (*Rana ventricosa*), croaked like the wheel of a sugar-mill being set in motion; and again we heard the complaint of Whip-poor-Will, and of the Euryangú, which brought to mind the delightful wilds of the Rio das Velhas. The raw damp became mild and balmy, the lightning sank to the very horizon, and the north cleared to

* Chapter 25 will tell how we were disappointed.

† *Vaga-lume*, the firefly, also known as *perilampo*, and *Cacafofo* (*Elater noctilucus*).

These specimens will show that the Portuguese language has some of the prettiest and the ugliest of descriptive expressions.

a dull blue. In fact, Hope visited us once more, and very deceitfully.

Sept. 28.—We set out at the normal hour, 5 A.M., despite the heavy shower, and, after three hours' work, we landed on the right bank to inspect the mouth of the Rio Verde Grande. This stream flows from the northern slopes of Montes Claros; coming from the south it receives the Verde Pequeno, which drains the western Serra das Almas, a branch of the Grão Mogor range, and a counter versant of the great Rio Pardo that inosculates with the Jequitinhonha, the two uniting and bending to the north-west from the frontier of the Minas and Bahia Provinces. The stream is ascended by canoes, some thirty leagues from the embouchure.

At the mouth of the Rio Verde Grande is a broad "praia" which causes the stream to flow along the right bank of the São Francisco. Upon the water-side, which is caked with mud, we found, as might be expected, a finer diamantine "formação." The higher parts of the beach were occupied by a negro family, whose hut was in a little garden of beans and water-melons. Here the latter thrive upon sand, almost pure of humus, and where "corn" is short and wilted. They sold to us for three coppers five melancias, very cheap compared with what the fruit will be further down. Bees were busy among the flowers, the pink *Crista de gallo*, like our "cockscomb," and the thorny-leaved, yellow-blossomed dog-rose-like *Sarrão* (*Argemone mexicana*) called "Cardo Santo," or holy thistle, from its real or supposed medicinal properties.* From this point we shall see its grey-green glaucous leafage all down the river. Another plant with white flower, pink stigma, long stamens, delicate leaves which curl up in the sun, and viscous stalk, will show its dull verdure in damp places near the settlements. The people call it *Mustambé*, and Mr. Davidson, after trial of the taint, declared it to be the "stink-plant" of the Mississippi valley. The *Tiririca* rush, so common on the streams of the Brazil, resembles papyrus, and towers over the *Capim Amargoso* (bitter grass), a large broad flag much loved by cattle. We saw but few animals on the banks, as the owners had begun to drive them inland. A few years ago one of

* Azara (i. 132) mentions its use in fevers; Prince Max. (i. 391) refers to it as a remedy for snake bites. The word sug-

gests the *Cardus Benedictus* of the old world, concerning which we may ask, "Benedictus! why Benedictus?"

the breeders lost 300 head by the sudden flooding of the Green River.

The Rio Verde discharges through a bending avenue of fine timber a considerable stream about 150 feet broad. The water was of a dirty muddy green, "heavy," as the crew remarked, and sensibly salt, without, however, the taste of saltpetre. These saline influents on the Upper São Francisco were remarked by Dr. Couto; they attract swarms of fish, who enjoy them as beasts do the "salt-licks." From this part of the valley downwards we heard of many similar formations: the Riacho do Ramalho, ten leagues below Carunhanha; the Riacho dos Cocos, falling into the northern Rio das Egoas, and others. They are worth exploration; salinas or deep deposits of sea-salt would be better than gold-mines, and open a fount of wealth to some enterprising man. The water might be treated like saltpetre, made into lye, and left to sun in pans or troughs. At present salt must be here imported from the Villa da Barra do Rio Grande, and even from Joazeiro; consequently it costs per quarta * 8\$000 to 12\$000.

On the low right bank beyond the Green River there is yet more cultivation. We were charmed with the soft and amene scenery about the Fazenda das Melâncias, backed by the Serra da Malhada, a north-eastern offset from the Montes Altos, the further wall of the Rio Verde Pequeno. Presently we passed the mouth of the Japoré, a considerable stream draining the Geraes massed together in our maps as the Chapadão de Santa Maria; the confluence is known as the Barra do Prepecé, which the pilots could not explain. I believe it to be the name of some Indian chief. The next influent, also from the left, was the Riacho do Ypoeira. Mr. Halfeld translates this Indian term "lagôa," or "tanque d'agua," but it is temporary, whereas the "lagôa" is perennial. It is becoming a constant feature, found where the banks are flat, and have not, as above Januaria, waves of high ground perpendicular to the main artery, and dividing the tributaries from the east and from the west. We here miss these heights, which often extended to the water, rising above all inundations, and forming a natural dyke to contain the channel. The low lands subtending the river-ridge are periodically filled by the floods, which are thus

* The old "Broaca" of 24 pratos (each 4 lbs.) is no longer mentioned. The smaller measure is the medida of 4 lbs.; 20 medi-

das to 32 (at Joazeiro), or from 50 to 125 lbs., make the "quarta," which everywhere varies.

prevented from extending far, as on the upper stream. The swamps afterwards dry up or become "nateiros," *i.e.*, slimes. Wonderful draughts of fish, especially the Surubim and the Trahira, are taken from the Ypoeiras, and some parts of the valley are literally manured with fin. A boat-load is caught by dragging branches along the waters as they dry up, and the denizens may be caught with the hand.

We ran quickly past the Pontal da Barra do Rio Carunhanha,* a large western influent which drains the Serra da Tauatinga, and is a counter-versant of the Parana or Paranan, the eastern head-water of the Tocantins. It is navigable for some twenty leagues up to the Serra or dividing ridge, through which it breaks; then it becomes a succession of rocks and rapids. Large timber, especially cedar, is here felled; made into balsas or rafts, and floated down for sale. Seen from the south the low sole appears overgrown with trees, a view from the west discloses a river about 300 feet, curving through grand vegetation, and it has probably shifted south-westwards or up-stream. The left jaw is a mass of sand, disposed in waving lines; a little further down, and forming a dark line, is a deposit of fine purple slate in slabs or layers. It is not wholly neglected. I saw several pieces two inches thick and twenty feet long, and smaller sizes were cut into round and oblong tables; they were without stains or signs of pyrites.† The Carunhanha is the western frontier between the Provinces of Minas Geraes and Bahia, and at the Pontal or Ponto do Escuro a guard was stationed, and duties upon goods were levied. It was deserted on account of the malignant typhoid fevers, called "Carneiradas," which butcher men like sheep (carneiros). Since 1852 the receivership has been transferred to the right bank.

We made for the "Malhada," or to give it the full name, Na Sa do Rosario da "Malhada," *i.e.*, a shady place where cattle gather during the hot hours. Here the Sao Francisco broadens to 2650 feet, and turns to the north-east; the Carunhanha pouring down the left channel strews the main stream with snags and branchy trunks, and forms a sand-bar, and a shoal which extends some way down. We were obliged to round the northern end of

* It is thus generally written; other forms are Caryunhanha, Carinhenha, Carunhenha, and Caronhanha (preferred by Dr. Couto); it is supposed to be a corruption of

Arinhanha, the large otter.

† M. Halfeld notices this quarry, and calls it Phyllado or argillaceous schist.

the latter, and to bring the "Brig Eliza's" head up to the south-east. The shore being exposed to the south-west wind, which came on heavily, yeasting the stream, I sent the craft to embay herself (ensaccar-se) leeward of the Corôa da Malhada, above the settlement. The single barca which was at anchor followed her example, but the canoes remained staked to the shore.

The Porto is a bank of sand and clay cut in steps by the ebb of the floods, grown with a few weeds, but bare of trees. A few horses and mules lingered over a scanty meal, and boys were fishing and bathing near a sandspit, where the water is too shallow for the dreaded Piranha. The settlement faces a little to the north of west, the houses on the bank are of mud and tile, one only being whitewashed; the long ends, of which the greater part is occupied by the door, fronts the stream, and the rails of the compounds are used as "horses" for drying clothes. The settlement consists of a water-street and two parallel thoroughfares, with a central square. Here is the Rosario Church, a ground-floor fronted by a deep sheltering porch; before it stands a rude black cross, bearing amongst the instruments of the Passion a very rude cock, and planted round with the Barba de Barata, or "cockroach's beard."*

The houses show a water-mark three feet high. Above the Malhada is the Sangradouro de Santa Cruz, which every year for about a week in January or February, permits the floods nearly to surround the settlement. After that the flow is surrounded by stagnant water, in places so deep that a boat-pole does not touch bottom. Of course this evil might easily be remedied, but who will undertake the cure which is "everybody's business?" To the east the land becomes sandy, and produces good cotton and sugar, the castor shrub, and the ever-green Joazeiro-tree, † a gigantic shady umbrella for man and beast. The level here begins to rise above all floods, towards the Serra de Yúyú, or Iúyúy, ‡ distant six leagues. It is a segment

* This is the *Poinciana pulcherrima*, a brilliant leguminous shrub, supposed to have been brought from Asia. According to the System it is rich in "stryphno," the astringent principle.

† "*Zizyphus Joazeiro*" (*AçEIFafa Joazeiro*), a species of Jujube tree; an ally to the hawthorn (Prof. Agassiz). According

to the System, its acrid, bitter, and astringent bark promotes emetism. Here, as in the Sertão of Ceará, it preserves during the dry season its foliage, which is eaten by cattle.

‡ This is a Tupy word, which no one could explain. The range is also called Serra da Malhada.

of an arch extending from east to south-east, and opposing its concavity to the river; there is apparently a projecting elbow or a buttress which forms an apex fronting to the west. It is said to be calcareous, and to abound in saltpetre. The western bank of the São Francisco is a vast level; the nearest range is distant about fifteen leagues. This Serra do Ramalho, more generally known as "A Serra," is also calcareous and off-sets from the great dividing ridge between Bahia and Goyaz.

I had a letter for Lieut. Silverio Gonçalves de Araujo Loureiro, Administrator of the duties payable to the Provincial Treasury of Minas Geraes (Administrada da Cobrança do The-souro Provincial da Provincia de Minas). We called upon him at his house in "Water Street," and sat there talking over coffee. He hails from Ouro Preto; and having spent twelve months in this vile hole, where of his escort, a sergeant and four men, all but one are dead or absent, he purposes to leave it as soon as possible.

Lieut. Loureiro gave me a printed paper, dated October 19, 1860, and showing that the several "Recebedorias" collected a total of 600*l.* to 800*l.* per annum.* Here imports and exports are both taxed, and only salt going up-stream does not pay. Three per cent. are taken on cotton, minor articles of provisions, worked tobacco (including Pixuá, a kind of Cavendish prepared for chewing), clothes, pottery bowls, canoes and woods for furniture; hammocks, whips, saddles, and so forth. Coffee is rated at three-and-a-half per cent, and six per cent. is recovered from grain, raw provisions, including poultry, which is the best thing in this place; hides, ipecacuanha, quinine, and precious stones, the diamond only excepted. The horse, valued at 5*l.*, is taxed 3\$160; the native mule (8*l.*), 4\$960; the São Paulo mule, 5\$000, and black cattle, 0\$600. These animals are driven to Bahia by a vile road which their hoofs made; it crosses difficult Serras without bridges or any "benefits," and the distance is 130 leagues.

A white man walked in whilst we were sitting with Lieut. Loureiro, and astonished us by his civilised aspect, amongst all this Gente de Côr; he was introduced as Dr. (M.D.) João Lopes Rodrigues, who had graduated at Rio de Janeiro, and had settled

* In 1852-54 M. Halfeld makes the exports reach a value of 21,200*l.*; imports, 34,500*l.*; balance in favour of the latter, 13,300*l.*

at Carunhanha. No one had the indecency to ask him the reason why; he complained of the *Preguiça do Sertão*—the idleness of the wild country—and of stimulus being totally wanted, except when a stranger happens to pass. I have heard the same in Dublin society; possibly Dr. Rodrigues, like a certain Abyssinian traveller, found “making up his mind” a severe and protracted process. He had suffered from the climate of the River Valley, always cold-damp or hot-damp, so different from the dry air and sweet waters of the sandy table-lands on both sides of, and generally at short distances from, the river. He had none of the pretentious manner and address usually adopted by the Bahiano, who holds himself the cream of Brazilian cream, and he readily accepted a passage in the raft to his home, about two miles down stream.

The denizens of the *Malhada* have a fever-stricken look, and their lips are bistre-coloured as their faces. Yet within the houses we heard singing and clapping of hands, after the fashion of Guinea; and, as we embarked, a little crowd of women collected to prospect us. The dress was a skirt of light chintz or calico, a chemise or rather a shirt, generally a shawl, and above and below comb or kerchief, and slippers.

We dropped down the still fierce stream, here treacherous and much dreaded. The strong up-draught often keeps craft in port for fourteen days; they load heavily, and the waves are likely to damage the cargo. The weather looked especially ugly, but our companion consoled us by declaring that we were fast outstripping the rains. Here showers had begun to fall only five days ago, and were called “*chuvas de enramar*,” of branching. The wet season will not set in till November, when the *Vento Geral* will shift to the south, the normal quarter. We escaped swamping with some difficulty, and presently reached the head of the *Ilha da Carunhanha*, which splits the stream into two channels of about equal depth.* The course of the river is here to the north-east, and the western arm is apparently widening; formerly children could swim across it. The islet is about two miles long, sandy, but of admirable fertility. It grows fine cotton, and as upon the *São Francisco*, lower down, manioc planted during the *Vasante Geral* (March and April), produces a large root

* M. Halfeld remarks that the right eastern bank is only half the height of the channel is low and full of shallows. The western.

fit for farinha before the flood-time in November and December. Here is a good site for a bridge to connect Minas with Goyaz.

At the landing-place are large blocks of Pissarra or Saibro do Rio, a felspathic clay, yellow-tinged with iron; this bank is 55 to 75 feet high, or 5 to 25 feet high above the annual rise. It is, however, much cut up by a surface drain, now an Esbarancado, but a Córrego during the rains, dividing it into waves of high and low ground, and loudly calling for a levée. São José da Carunhanha is a larger place than it appears from up-stream; there are some 450 houses,* none double-storied, and mostly flanked by the Gupiára or Agua furtada. Though noble timber is here, the wood-work is mostly sticks. Young cocoa-nut trees grow well in the court-yards, and the produce of the adult in this saline nitrous soil is 200 nuts per annum.

In the north of the town we found an enormous square, the Largo do Socavem; † it has a cross and symptoms of a chapel. Beyond the settlement a Sangradouro with a sandy bed, based on hard reddish clay, breaks the bank with a gap some fifty yards broad, and the floods form a back-water which does not extend far. The best houses are in the southern square, where fewer people squat on logs before their doors; there is a Camara and a prison; in the latter our Januaria man found a friend who had been resident for nearly four years, after kniving a brother boatman in a drunken quarrel. The Matriz of São José da Carunhanha suggests nothing but an old termitarium, yet it has a bell which sounded for us the Angelus.

It now becomes difficult to collect local information. The great Province of Bahia is behind most of her rivals in popular topographical works, and those which she possesses are too cumbersome and discursive for the traveller, whilst Minas Geraes has her Almanaks, and São Paulo has two handbooks. Carunhanha, dismembered from the Villa da Barra, rose to township thirty years ago, and is now capital of the Comarca of Urubú in the Bahia Province. Its municipality formerly extended to the Rio das Egoas, the western branch of the Paracatú; here, however, a villa has lately been established under the name of N^a S^a da

* In 1852 there were 265.

† It is the name of a town in Portugal,

but none of the Carunhanha people knew what it meant.

Gloria do Rio das Egoas. This municipio still numbers about 10,000 souls, of whom 1000 to 1200 are in the town; slaves are rare, and few fazendeiros have more than 40 to 50 head. The post arrives three times a month,* and each side of the river has a fair-weather road to Januaria—distant thirty leagues.† The principal imports are from Joazeiro, and include salt and dry and wet goods. There are no rich men, and the chief people breed cattle for export. They also send “sola”-leather, hides—here worth each 1\$250, and at least double below Joazeiro—a little sugar and dried fish. The land would produce rice and cotton in abundance. Hereabouts also the Geraes grow a medicinal root known all down the river as Calamba or Calunga.‡

Dr. Rodrigues led us to his house in the square, and offered us the luxuries of sofa and rocking chair, wax candles, and a map of the war—moreover he gave me his photograph. I sent an introductory letter to the Delegate of Police, Capitão Theotônio de Sousa Lima. That young man did not even return a message; possibly he, a Liberal, had seen us walking with the doctor, a Conservative. Again the stranger was tempted to exclaim, “Confound their politics!” Unfortunately for us, the Juiz de Direito of the Comarca, Dr. Antonio Luis Affonso de Carvalho, was on leave at Bahia; all spoke well of this distinguished “Curioso.”

We reached the raft in time to prepare for a night of devilry let loose. A cold wind from the north rushed through the hot air, and precipitated a deluge in embryo. Then the gale chopped round to the south, and produced another and a yet fiercer downfall. A treacherous lull and all began again, the wind howling and screaming from the east. The thunder roared and the lightning flashed from all directions; the stream rose in wavelets,

* The 5th, the 15th, and the 25th are the days appointed, and this tri-monthly delivery is the rule of the river. Of course punctuality is not to be expected.

† The reaches will now become straight, and the land routes, which everywhere connect, are but little shorter than the water lines.

‡ Probably the word is taken from the African Colombo or Calomba (*Cocculus palmatus*), which gives the *radix Colombo*.

It is mentioned by St. Hil. (III. i. 164-5). The System (p. 93) calls it *herva amargosa* (*Simaba ferruginea* or *Pichrodendron Calunga*). The bark of the root and trunk of this Rutacea, which is much valued as a simple, has an unpleasant, bitter, acrid, and astringent taste; it is stomachic and anti-febrile. I heard it everywhere spoken of, but no specimen was procurable under a couple of days' delay.

which washed over the "Eliza" and shook her by the bumping of the tender-canoe. At last, just before day-break, the crisis took place, and we snatched a few minutes of such sleep as hot heads and cold feet, and dogs persistently baying at the weather, would permit.

CHAPTER XIX.

FROM CARUNHANHA TO SENHOR BOM JESUS DA LAPA.

FOURTH TRAVESSIA, 24½ LEAGUES.

A GOOSELESS MICHAELMAS.—THE LUGAR DA CACHOEIRA.—THE PARATÉCA STREAM, AND THE DISPUTED “RIO RAMALHO.”—DIAMANTINE DEPOSITS.—THE ALLIGATOR NOW KILLED OUT.—THE CONDE DA PONTE.—THE ASSASSIN GUIMARÃES.—THE MOUNTAIN OF THE HOLY CAVE DESCRIBED.—THE VILLAGE.—THE HOLY CAVE.—THE STOUT-HEARTED VICAR, REV. FRANCISCO DE FREITAS SOUEIRO.—THE “UNIFORMITARIAN” ENVIES THE “CATASTROPHIST.”

. . . lapa que esconde alto mysterio.

Caramurá, 7, 8.

MICHAELMAS DAY found us gooseless, worn out and cross; the song was hushed, and silenced was the voice of chaff. After a couple of dull leagues we reached the Lugar da Cachoeira, famed for pottery. The clay is made into neat talhas (jars) and quartinhas (gugglets), ornamented with red tauá, placed upon the naturally yellow groundwork before burning. What is here bought for two coppers fetches six at Joazeiro; our men made a small purchase, and the prospect revived their spirits. The Cachoeira took its name from a ridge of rock forming a diagonal rapid across the stream. A sand-bar has now been thrown up, and we passed over the place ignoring its old break. On the left bank, which rises above the floods, and which is drained by two “bleeders,” there are a few huts. Further down is the Fazenda dos Angicos,* where the yellow variety of Acacia is common.

We halted at noon on the left bank near the Fazenda do Espirito Santo; it has a large grove of Joazeiro or Jujube trees, whose bark is sold for tanning. The straight reaches, some twenty

* M. Halfeld, I have remarked, calls villages (povoações) what the pilots speak of as fazendas. The words are here nearly synonymous; the fazenda is a breeding

or agricultural establishment, often containing a little chapel and a dozen huts belonging to as many proprietors in partnership.

miles long, and the narrowness of the stream, 1460 feet, greatly increase its flow, which averaged three knots an hour. The morning rain had diminished to a spitting, but a strong wind came up from the south and played about the west. Here the people do not shout

Honor be to Mudjekeewis,

who is also of the Pau-puk-Keewis family. These signs and symptoms induced the men to caulk the port canoe, which had scraped bottom till the cracks formed a leak. At 3 P.M. we had to repeat the operation on a large praia to the right, opposite the Fazenda das Pedras. Here we found bits of pure saltpetre, and a trunk of Braúna tree almost lignite, while the diamantine "formação" appeared under water, between wind and water, and above water. About 5 P.M. we "knocked off work" at a long beach near the mouth of the Paratéca; * called a river, it is a mere streamlet, a fillet of water now coursing down the right bank, and even during the floods it admits canoes for only two leagues. A barque and sundry dug-outs were being repaired by a dark carpenter, who told us five lies in three minutes, and who apparently would have ridden twenty leagues to unburden himself. He pointed to the "finest place on the São Francisco," the Barra da Ypoeira on the Pernambuco, as the boatmen still call the now Bahian bank. It was the usual high bluff, red above, white below, with sand up-stream and bush down-stream. The neat huts upon the level ground reminded me by their small size and "natty" look of the pretty one-street villages on the Old Calabar and the Gaboon Rivers.

Sept. 30.—During the night rain fell again. At dawn, low, mist-laden clouds lay heavy where Carunhanha was, and lighter vapours coursed from south-east to north-west, but far behind us. Presently the climate became that of Malabar, and before 8 A.M. the pilot actually removed his black coat. About noon a strong southerly breeze swept through the well-washed atmosphere. There was nimbus to the south as well as to the north, but we were not molested, and the weather was peculiarly comfortable and good for work. It was a "dies notanda," this our first fine day upon the Rio de São Francisco.

* This stream also shows signs of diamonds in its sandbanks.

We set out at 5 A.M., and, after passing the usual features,* we landed at 7.30 below the Sangradouro da Volta de Cima to inspect the large R. Ramalho, which in Mr. Keith Johnston here enters from the west. Nothing appeared but a mere ditch, a Riacho.† Most men agreed that the Rio do Ramalho is a branch of the Rio do Corrente, further down stream. Hence, possibly, the confusion in our maps, which give a Rio Corrente entering the imaginary Ramalho, and to the north a Rio Correntes, which is the true Rio do Corrente. The beach again afforded good sign of diamonds, including the cattivo, the crystal, and the cánga-stone. Barboza, “Barba de Veneno,” picked up a wax foot, some votive offering that had remained here en route to the Bom Jesus. He forgot to leave it at the shrine, and thus all our little accidents and evils were chaffingly attributed to him.

We passed in succession the Barra do Riacho das Râas, from the right, and the Pitubinha and Pituba, formerly Fazendas. The Rio das Râas, also on the east, is a mere rivulet, whose waters are said to be fetid. The opposite side showed a regular and tabular bank of soft greensward, adorned with tall trees. At the Ilha da Corôa Grande, a sand-bar and clump of vegetation, there was a shallow and a tide-rip. We took the right channel, and both abound in snags. Of this part M. Halfeld says, “there are many caymans (Jacarés), of ashen-brown colour, and one with a yellow throat, called the Ururáu, which is the Crocodile (!) ‡ Frightful numbers appeared, and my boats were surrounded by more than thirty.” He also mentions Capivaras, which similarly have “made tracks.”

About the “Frogs’ River” we sighted a long blue range perpendicular to the stream, and extending far inland.§ At its mouth was the Ilha da Batalha, a memento of some forgotten struggle with the wild men. At 3.30 we passed the Ilha da Boa Vista, a sand-bar in mid-stream. On the left bank was the

* A green islet on the Pernam side leads to “As Barreiras,” a red bluff, wavy in outline with projections and bays; the central depression is the only part subject to the “tip over” during floods. Then appeared the Ilha da Volta de Cima, where the stream bends to the east-north-east; it is a strip of yellow-green vegetation, with its ruddy bluff a league long, and its Sangradouro.

† Some authorities told me that a little

Ramalho Rivulet exists near Pitubinha. M. Halfeld shows a drain, but does not name it.

‡ This is probably the Jacaré de papo amarello (yellow-throated cayman), which is supposed to be more dangerous than the common *Crocodilus sclerops*. I do not know whether there be, as has been suspected, any specific difference between the two.

§ Mr. Keith Johnston’s map places along the stream a range which does not exist.

Fazenda of the same name. Here in old colonial times began the enormous property of a Portuguese, known only as the Conde da Ponte; the family has long left the river. The Fazenda da Boa Vista afterwards belonged to the "Assassin" (Antonio José) Guimarães, who sixteen years ago murdered his brother, the Commandant Superior José Guimarães. He was afterwards killed in Goyaz, it is said by a party of mule-troopers. A canoe was fastened to the bank, and we counted twenty huts, faced by a tall thin wooden cross. The men indolently stretched under the trees, replied gruffly to the extempore songs and bawling chorus of my crew. Here they are contented with a curral or fenced enclosure for their animals when driven from pasture, with railed-off plots of manioc and corn, melons running over the sand, and in rare places with a few stems of arboreous cotton. The furniture of the tiled hut is a giráo or cot, a sleeping-hide, a few benches, riding apparatus, wooden bowls and cooking pots, whilst the gun and the line never allow them to see the face of hunger. These are humble comforts, but they far exceed those attainable by the dwellers about the Great Rapids. The wigwam was as well furnished, even to the wooden ferule for thrashing the women, which hung to the ceiling.

Near the Fazenda da Volta de Baixo, on the right bank, we heard the dash of falling water, and at 5.30 P.M. we landed for the night upon one of the three "Ilhas do Campo largo." The clear dry minute sand crunched with a peculiar chipping sound, like snow under foot-friction; and here again diamantine deposits lay in lines parallel with the water. We are now in about the latitude of the Serra das Almas, whose eastern horn, the Serra de Sincorá, is one of the richest diamond districts in the Brazil. And it is evident from the state of the sand that it has floated from afar.

Oct. 1.—During the night the water fell, and we had some delay in pushing off. Observing the cirrus and cirro-cumulus high in air, the pilot quoted a proverb similar to our own.* The channel between the sand-bar was very foul with timber. On the right was the head of the Ypoeira or bayou, which spreads out into a little lake about its central course, and returns to the

* Céu pedrente,
Ou chuva ou vento,
Ou mudança de tempo.

A stone-paved sky, rain or wind high,
or change to dry.

main artery above the "Lapa." Below it is the Ilha do Medo—of Fear—another reminiscence of the dark and bloody days. As we bent to the right, or north-east, the Serrote da Lapa rose tall and abrupt over the vegetation based on the river sand. Above them was a slight central depression, and a yellow gash noted the position of the mysterious cave. Below it ran diagonally to the stream a thick avenue of Jacaré* and other trees, showing where the bayou re-enters the parent stream.

As we advanced northwards, the Serrote viewed from the west changed its form to that of a headless sphynx, or a crouching lion, the popular comparison. And now we could distinguish the peculiarities of a scene, whose novelty has raised it to sanctity. It is the mere skeleton of a mountain, disposed with a north-east to south-west trend, and lying lone upon a dead level. It is remarkable for perpendicular lines bristling against the air, with ribs which resemble finials or pinnacles. The sides, fretted and jagged like the flying buttresses of a Gothic temple, are cut up into salient angles, and are sharp-pointed by weathering. It has cleavage rather than stratification; deep black cracks, at altitudes varying from ten to thirty feet, run horizontally, forming gigantic courses of masonry. On the north-eastern side these courses are slightly dislocated, dipping towards a bushy depression in the centre. The south-western end is a vertical precipice, with a long broad yellow stripe, where the stone had been removed. The colour of the mass generally is grey-slate, breaking blue, with fine crystals of the whitest calcaire.†

A few tiled roofs, and one white-washed house, rising in their line at the hill base above the trees and shrubs, directed us to the Port. We landed on the right jaw of the bayou, which during the floods becomes a harbour of refuge. A tall bank, much water-washed, led to a plain grown with grass, shrubs, and tall trees; one of the latter, an acacia, with golden blossoms, emitted a heavy cloying scent. Deep pits, cut for adobes, showed the nature of the ground, sand and clay, with scatters of limestone. Hence cultivation here flourishes; the people plant garlic and onions, melons and water-melons, pumpkins—especially the

* So called from its rough scaly bark; the word is possibly a contraction of Jacaré ihuá (or igá, a canoe?), which supplied the "Indians" with dug-outs twenty to thirty

feet long.

† Colonel Accioli calls it a granitic formation; it is, however, all limestone.

Girimú—haricots, and the castor bean, Quiábos or Hibiscus; rice, and a little maize, sweet potatoes, and excellent cotton. We also passed a well-railed field, whose freshly-cut grass preserved the aroma of hay.

Presently we entered the settlement, which is detestably situated; even the African avoids the vicinity of great rocks. Here eighteen houses, disposed in arch-shape, front towards an unfinished church, which stands at the base of the great stone pile. They are all of the ground-floor order, built upon foundations of rough limestone; and one is solidly made, with attempts at pilasters. The total of the tenements may number 200, and, as all are inhabited, the population cannot be less than 1000 souls.* We found fresh meat, and bought tapioca cakes, whilst every vendor applied to us for medicine. We can hardly wonder that they suffer from psoriasis, cutaneous eruptions, terrible fevers, and inflammations of the spleen (*opilacoës*). Besides the limestone reverberator, they have the full benefit of a large Ypoeira swamp. Thus the stone raises the temperature of the air, and the heavier marsh poison rushes in to supply its place.

At the crescent a party of pilgrims were mounting their animals, and were being dismissed with a "Bom Jesus da Lapa guide ye!" We walked to the south-west, noticing in the occidental face of the buttress several ogival entrances, doubtless natural. In the higher levels, wherever the rock had been degraded to soil, trees displayed the filmy light-green foliage of spring; the most conspicuous were the Joazeiro, the Angico, and the delicate Pitombeira myrtle. The stone was clad with lichens and air-plants grey as itself. At the south-western end is the tallest bluff, which contains the grotto. Here a huge column, horizontally fractured in three places, and separated from the main wall by a perpendicular fissure, threatens to fall. At the cliff-foot is the Ypoeira channel, and here large fragments of limestone, cut into curious shapes by the water, block up the ledge which once allowed a path.

Six rough steps of blue limestone lead up to the Lapa, which faces west. A stout wooden door, with ponderous lock, and above it two shuttered windows, with "rose-light" and drain

* M. Halfeld says 128 houses and 250 souls, a very unusual proportion, except where ab-entecism is the rule.

pipe, are flanked by thin pilasters of the burnt brick and lime composing the entrance. Inside, ten steps of brick, placed edgeways, and dangerously narrow for crippled devotees, admit to the body of the Holy Grotto. I looked in vain for aught to justify the vivid imagination of Rocha Pitta, which saw here an entrance large enough for a city, a stone bell * made by Nature's hand, marvellous columns of stalactite, and a high altar with collateral shrines ready for human use.

The Cavern, a very vulgar feature, bends to the right, and extends forty paces in depth, widening from ten to twenty paces at the far end. The floor is of tamped earth, which, being like all the Serra, miraculous, is collected by coloured people to be used as medicine. It is the sovereignest thing for a headache. Near the entrance the ceiling is flat, water-worn, and smoke-blackened; over the shrine it is somewhat arched. Down the length of the blue limestone runs a light-yellow band, forming truncated stalactites. In the vicinity of the steps there is a stalagmite resembling a Hindoo "lingam." The narrower end, and both sides of the grotto, are supported with masonry. On the left of one advancing towards the altar, wooden steps lead to a box covered with red silk, and lace fringed with cloth. The awning of this pulpit is a projecting ledge of stone. Further on is a shallow recess in which some hermit has been buried. Opposite it, at the broadest part of the tunnel, projects the varanda or balcony, a natural opening in the wall. Here, upon a bench, lounged a few idlers, chiefly negroes, enjoying the fresh draught from the green-avenued bayou below. The atmosphere reminded me of Yambú, yet the thermometer showed only 85° (F.) †

The high altar is at the further and broader end of the Cave. It is approached by a raised platform of dislocated wooden oblongs, showing old graves. The shrine is fronted by a tall central arch, between two of smaller size, all three lined with painted wood, and hung with ex-votos. That to the right opens upon a narrow passage behind the adytum; the ascent is bad, the boarded floor threatens to fall, and there is an odour of death—perhaps the calcaire may be of that kind vulgarly called

* Meaning, I presume, a thin plate of stone, which could be used like a gong. The only bells now are two small articles, hung to the usual wooden gallows, and protected by a small tiled roof.

† M. Halfeld found it 95° (F.), nearly blood-heat. The bats of which he complains have disappeared, leaving no sign, and the dead are no longer buried within the cave.

“stinkstone.” The left archway is the mouth of a recess heaped up with heads and faces, arms and legs of beeswax, and other offerings which commemorate the sanative powers of the spot.

In the highest part, under the central arch, and protected by a wooden tunnel ceiling, stands the Senhor Bom Jesus da Lapa. The little crucifix is, to judge by the ghastly style of the colouring, modern. A polite devotee assured me that it had been found here, and that, despite many attempts, no one had ever been able to remove it.* Upon the ledge at its feet are statuettes and two candles burning. On the altar below there are more images, and six lights, whilst a massive and expensive silver lamp, bought at Bahia, hangs from the ceiling outside. Beyond the railings of painted wood stand portable chapels of Nossa Senhoras, each about ten feet high, sentinelling the shrine. Also, most important of all, a strong box of iron, labelled in the largest letters, “Papel—Cobre,” catches the first glance.

This place of pilgrimage has the highest possible reputation; devotees flock to it from all directions, and from great distances, even from Piauhý. Sometimes there may be a crowd of 400 visitors.† The average daily receipts, I was told, amount to 20\$000, and on Sundays to 50\$000. The “escolas” are paid to a certain Lieut.-Colonel Francisco Teixeira, who is the Procurador of the shrine. My crew when exhorted to visitation, lest they should call their employer “herége,” pleaded “who prays, pays.” They went, however, and the pilot gave fourteen vintens, the rest two. I left something at the foot of the crucifix; the old Sacristan did not readily find it, and he hurriedly sent a message, asking the amount of my alms.

We left the fane very little impressed, except by the damp heat. Our next step was to the Porto, on the right bank of Ypoeira. This is the seat of trade. We found a few houses, half-a-dozen sheds, one barca and five canoes. The principal industry is making saltpetre, which is here found in quantities at the south-eastern side of the Serrote. It is a constituent of all these calcareous soils, the effect of atmospheric air decomposing the limestone. The process of extracting it is a mere

* Thus, at Cairo and in other Moslem cities, tombs are seen let into the walls of the domiciles. This is where the bier-bearers have been unable to contend with an obstinate corpse, which insists upon

choosing its own sepulture, and becomes so heavy that none can carry it.

† From Januaria the best road is on the eastern bank of the river.

lixiviation; the chocolate-coloured earth, mixed with stone, is thrown into a bague or strainer. This is generally a square pyramid of boarding, with the base upwards, equally useful for extracting saltpetre or soap-lye. The poorer people use a hide, supported by four uprights, and both act like jelly-bags. When exhausted with hot water, the nitrous particles find their way, duly filtered, through a tube leading to a "Coche" or trough, often a bit of old canoe. The "decoada," as it is now called, is a thin greenish liquid, which must be boiled in a "tacho," or metal pan, like that used for sugar. This "tacho" is sometimes mounted upon an ant hill. It is purified by repeating the process, and it appears in regular six-sided columns of yellow-white colour. The price is here six coppers; on the Upper Rio das Velhas it sells for 10\$000 per arroba. In the Sertão saltpetre is used medicinally for nitre. My specimens were unfortunately lost, and I cannot decide whether the material is or is not the nitrate of soda like that of Chile, which though usefully employed in composts and nitric acid works, attracts so much damp, that it is of little value for making gunpowder.*

We introduced ourselves to the Vicar, the Rev. Francisco de Freitas Soueiro, a native of Lamego, near Douro. He spoke with great reserve about the miracles of the place, and declared that the image must be some 100 years old. The Lapa Sanctuary, however, dates from 1704, and was founded by a Lisbonese, the Padre Francisco de Mendonça (alias da Soledade), a man of considerable property. He set up the figures of N^a S^a da Bom Jesus, and N^a S^a da Soledade, and the Archbishop D. Sebastio Monteiro da Vide, † after sending to it a Visitant, made the Lapa a chapel, and the Padre its priest.

By no means so reticent or so sensible was the Padre Baldoino of the Villa da Barra, who was calling upon the Vicar. He gravely assured me that all the Serrote was blessed by Heaven, and consequently that it must contain gold and diamonds. The crucifix, he said, was at least 367 years old—about the date when the Brazil was discovered—and was worshipped by the wild people before it was found by Christians. His red face became

* Contraband gunpowder has, however, often been made with saltpetre brought from Minas, even in the days when the former was a royal monopoly; the latter in 1816 sold for 4\$600 per arroba at Rio

de Janeiro. A lately-made analysis of the brown Bahian saltpetre gives a fair account of it.

† This ecclesiastic issued the "Constitutions" of Bahia in 1707.

redder when I asked him if another would not do as well. He declared, with various inuendoes, that the efficiency resides in that particular figure ; that it was the work of a miracle ; that it was formed by a miracle, and that by a miracle it remains. Substitute for it anything else, and all virtue departs from the Lapa. I afterwards heard that this reverend was once a person of fair attainments, but that his devotion to Bacchus had dislodged part of his intellect.

The Vicar had lately recovered from an abscess in the leg, which, despite Lanman and Kemp's Salsaparilla, had nearly killed him. When we spoke of ascending the Serrote, he concealed his ailments, and offered to guide us. He proved himself a good man, and actually climbed up in his slippers. At the base of the hill began a thin grove of Xique-Xique, here a kind of Cansanção or *Jatropha urens*. This is a tall shrub, with patches of sharp and venomous thorns radiating from common centres. It extends to the summit in clumps, and is much feared by the people. Another unpleasant growth is a small Bromelia, with cruel serrations. In the lower part I found sundry young shells of a pink-lipped *Achatina* (No. 2), which here grows to a large size. John Mawe (i. Chap. 12) records his astonishment at seeing the eggs laid by this "new variety of helix." The air was perfumed with the odour of peppermint from a bright blue floweret, which seemed to have no name. We ascended the wooded central depression on the western side, behind the main bluff, and a steep rough path had been worn by the fuel-seeker. In the shade the thermometer was 94° (F.) The small red ant stung viciously, and huge iguanas eyed us as if the lazy things disdained to run away. We found adhering to the lime a hard red sandstone, with black spots like syenite, and silex with a conchoidal fracture, which had the tint and the compactness of Rosso Antico.*

Reaching the summit of the gulley, we started flights of urubús, which had whitened the pinnacle tops. Here there is no soil except where the rock is resolved into its original elements. The jagged surface is like the waves of a cross sea, and in places it looks as though rain-drops had splashed upon a soft substance.

* This appeared to be a sign of igneous action ; our glasses could detect no signs of shell in the limestone ; and the glazed iron stone and conglomerate scattered about the base suggested exposure to heat.

A rude triangulation from below had given 150 feet, a total of about 180 above the stream.* Between the thorns we enjoyed a noble view of the São Francisco, whose inundations extend in places three leagues across. The broad band which glittered in the sun with silver and gold winds in majestic sweeps round the Island of Bom Jesus, the well-cultivated "Canabrava," and the "Itaberáva," or Shining Stone.† On the north is a blue knob, the Brejo de São Gonçalo, beyond the Rio do Corrente, and to the north-east a long purple line, the Serra do Bom Jardim, and the two low domes, near Urubú. Nearer is the Fazenda of Itaberáva, where only the stream-edge is flooded; its green pastures are rich in horses and black cattle. And at our feet lies the village, with its three small streets branching from their nucleus, the square.

In this grand lump of limestone there is sign of convulsion or catastrophe. The growth or upheaval must have been so gradual, that the long horizontal lines are still hardly broken. It is greatly to be desired that some catastrophist, writing upon "geological dynamics," would state precisely the ground upon which he believes that the ancient oscillations, dislocations, and inversions of strata are not wholly explicable by existing phenomena, with the Hindu ages and the Tropical and glacial epochs behind them. And when the Uniformitarians shall have won the day—and I presume that the believers in continuity, in the "orderly mechanism" of slow and long-continued movements broken by periodical paroxysms, will win it, seeing how much they have already won ‡—it is to be hoped that they will do better than the Cosmos, which includes under vulcanism, or vulcanicity, "crust-motion," together with earthquakes and volcanoes. Archeus has been proposed for the honour of naming that slow growth which belongs to the earth as to other inanimate things; so has Ennosigæus. We want something which does not hail quite so far back.

* M. Halfeld gives 240 palms (=172 feet).

† Itaberáva or Itaberába "pedra que luz," is, according to Rocha Pitta, the name of the whole Lapa. The Fazenda formerly belonged to the Conde da Ponte.

‡ In the beginning of the present century, M. Boubée and others explained the appearance of aerolites, erratic blocks, and similar "problems," by supposing that the

earth had dashed to pieces some minor star or planet. This is but a modification of that semi-barbarism which sees in the world-plan disorder and destruction, the work of offended deities. Buckle (i. 800) complains, with feeling, that many men of science are still fettered in geology by the hypothesis of catastrophes; in chemistry, by the hypothesis of vital forces.

CHAPTER XX.

FROM SENHOR BOM JESUS DA LAPA TO THE ARRAIAL DO BOM JARDIM.

FIFTH TRAVESSIA, 26½ LEAGUES.

THE RIO DO CORRENTE.—THE SETTLEMENT “SITIO DO MATO.”—THE “BULL’S EYE” AND STORM.—VISIT TO THE VILLA DE URUBÚ.—URUBÚ WILL NOT BE A CAPITAL.—WE RESUME WORK.—COMPLETE CHANGE OF CLIMATE AND ASPECT OF COUNTRY.—THE SETTLEMENT “ESTREMA.”—REACH BOM JARDIM.—ITS RIVULET AND FINE DIAMANTATION.—TRUE ITACOLUMITE.—BOM JARDIM A GOOD SITE FOR A CITY.

Os tres reinos aqui que a opulencia,
E bases são da humana subsistencia,
Em Minas e animaes e vegetantes,
Tão uberrimos são e tão patentes,
Que não resolve a subida subtileza
Por onde mais pendeo a natureza.

Frei F. de S. Carlos Assumpção, Canto 6.

WE bade adieu to the good Vicar and resumed our journey, although it was already late. Presently a bad storm followed the sultry “Mormaço,” or stillness of the atmosphere, and came rushing up from the south. The lightning, seen through the rain, appeared a white fire, whereas it was remarkably pink in the dry air. Dripping with wet, and anything but merry, we made fast, at nightfall, to the Sitio do Mato, a well-cultivated island; we fed and we “turned in,” to “bless the man who invented sleep.” Mixed with the sounds of mankind, the cry of the night heron resembled that of the ounce, and the fish splashed a treble to the grim bass of the falling banks.

Wednesday, October 2, 1867.—Cirrus again and “mackerel’s back” prepared us for more bad weather. We set out, however, at 4:45 A.M., and ran down the island which had sheltered us; it thinned out and showed an even richer cultivation than above. At the bottom of a high bank on the left, came in the Rio do

Corrente,* so called from the swift currents which sweep round the salient angle. We crossed the mouth, some 500 feet broad, of this great stream, which here runs from west to east; its right jaw projects in a long sand-bar, and a dark avenue in its left cheek shows the line of an affluent, the Riacho da Barra.

Below the port, which is flooded, the bank rises 35 feet, driving the main stream to the north-east. The high ground is divided into two waves, and, in the hollow between them, is the manga or kraal for cattle, communicating with the ajôjo raft, which passes them over for Sincorá and the Bahian Chapada. Above rises the village Sitio do Mato, running nearly north and south, a line of mud huts and three whitewashed tenements. We landed below it upon Tauá, a stiff white clay, underlying a steep, sandy ramp. Opposite was *the* flash house—roof-corners adorned with pigeons of white plaster and so forth—belonging to a cattle breeder, Theodoro Antonio de Oliveira. He turned his back to us, as we were walking past him, and, of course, he was a “cabra” or a “bode,” probably the latter. Further to the north is a tiled shed covering, a portable chapel and a cross, with its sudarium; behind it lies the railed cemetery, and a heap of adobes, intended for a mortuary sacellum, whose beginnings were washed away in 1860.

Inland, the bush extends up to the settlement, and the out-lying lands are said to be good for cotton and castor. Westward, and not in sight, rises a range known as “A Ribeira;” † between it and the village are many lakelets and ypoeirras, which do not recommend the “Sitio do Mato” for a future capital. The village proper is to the south; here the floods enter between the waves of ground, and extend to the habitations behind the “manga.” The small industries are cotton-spinning and making soap-lye; we shall now find the “banguê” everywhere; the animals are barking curs, and pigs, and poultry, especially turkeys. When we wanted to buy fish, the fisherman refused to sell, saying that he had a large family; and under a shady Joazeiro tree we found, in excellent repair, the good old

* This great influent drains the meridional spine that separates Bahia and Goyaz. Boats navigate it, despite snags, as far as the Porto de Santa Maria, 28 leagues from the mouth; the banks are said to be grandly forested, and, in places, to be cul-

tivated. One of its many tributories is the northern Rio das Eguas, and this again has a considerable influent, the Rio Acanhuão.

† The right bank showed a long blue range which the people called de Sant’ Inofre (Onofre or Onofrio).

“tronco,”* or village stocks, which have but lately disappeared from rural England. Here they are two long boards, planted upright, and pierced with ten holes, accommodation for five men, “in log,” as the Africans say. At times it is used as a pillory, but the offence must be very grave.

Pushing off from the Sitio do Mato, we found the water so deep that the pole would not touch bottom. The effect of the Corrente River is a great sack to the left, and then to the right. The eastern shore is only nine feet high, and the interior is still lower; during the rains boats cut across country to the Villa de Urubú, despising the risk of submerged trees, and the annoyance of insects. On the side is the Fazenda da Bandeira, and below it, a section of the eastern shore, the large island of Santo Antonio,† from which another cross-cut, setting off north-east to Urubú, joins the other. An ostrich appeared, pacing along the shore, but the people have not yet learned to kill it for its feathers.‡

At 1:30, as we were going north with easting, opened up a full prospect of what we had dimly sighted for five hours, and which prepared us for a change of country and climate. On the left bank appeared a “neat’s-tongue,” projecting in regularly shaped treeless mounds of brown-red hue. This is a spur of the Serra Branca, which, according to M. Halfeld, is a calcareous range; the specimens shown to me were sandstone grit revetted with quartz.§ Behind the Serra begins the plateau known as the Alto do Paranan, rising almost imperceptibly towards the heights which feed that stream. Along the southern side of this neat’s-foot begins the highway to Goyaz city,|| which is here said

* Trunco in St. Hil. (I. ii. 42 and III. ii. 101), who describes it minutely, but makes it like the “Tornilho,” a military punishment, and refers to the neck being placed in the pillory. The invention is probably due to the Arabs, whose “Makantarah” has extended to the Zanzibar coast in East Africa.

† Mr. Keith Johnston places on the right bank, about half way between the Lapa and Urubú, the town of “Santo Antonio,” which is a mere fazenda or Sitio fronting its large island.

‡ The Welsh colony in Patagonia are buying, I am told, Ema feathers for three-pence per pound, and expect to sell them in England for thirty shillings. In these

civilized days, when no head requires to wear the colours which Nature gave it, surely the grey plume of the American bird may, by bleaching and dyeing, learn to pass off as an African.

§ The citizens of Urubú declare that from this Serra an old Minas negro, who was prospecting for gold, brought rounded steely grains, which in the cupel proved refractory. The discoverer died, and the discovery was lost on the road to Bahia. Platinum, of which the people have seen little and heard much, is naturally suspected.

|| The country lying to the west of the city, is one of the few which the Brazil still offers to the explorer, as opposed to the traveller.

to be distant 150 leagues. The road is described as being safe, and abounding in game and water; the sole inconvenience is a desert tract, 30 to 40 leagues broad, where provisions must be carried. On the right bank was the second distance, a straight blue wall, the Serra do Boqueirão, three leagues beyond Urubú; and the third, still further east, consisted of a saddle-back, a ridge and two lumpy heads, parts of the Geraes attached to the Boqueirão.

Shortly afterwards, the left side, red above and white below showed the Povoado do Mangal, and its Rosario church, with falling front. Beyond its island the stream bent to the north-east, and already, behind a large central holm of vivid red, we descried the white dottings of a town. But now the effects of "mackerel's back" declared themselves. Boulder clouds surged up from west and south, hiding the hills with hangings of rain sheet. To the east appeared the ominous "Olho de Boi," or section of Iris that promised a "temporal." We made, with might and main, the windward bank, where at 4.15 P.M., the roaring gale compelled us to anchor, and to bush the Eliza.* We passed a night of scanty comfort. The guinea-fowl clucked in the village till dawn, and there was another nuisance. Hitherto, we had slept near Corôas or Praias to avoid insects, which are very properly termed "immundities." Here the weather compelled us to roost under a ridge, with a fall inland, a mere cattle-trail, and a rich breeding-ground for a small and almost minute mosquito, whose sting was like a needle-prick. As a rule the river has been wonderfully free from insects as from snags; this part, however, is an exception. When we least wanted a calm, the gale fell dead, and when light was worthless, the stars hung like lustres from the cloudless sky. The pilots declared that we had escaped from the rains to fall into the power of the wind; it will be seen that they were right. Our course was against the sun, which will presently bring up with him wet weather, but the heavy showers, now falling behind us, must increase the evaporation, and open a way for the cool dry Trade.

Oct. 3, 1867.—At earliest dawn began angry puffs from the red

* To prevent the waves washing over these shallow rafts, the pilots have the sensible practice of cutting off the heads of

young trees or leafy branches, which, fastened alongside or to the bows, act as screens.

eastern sky, which was striped with cirri of a dull vermilion, and was mottled with clouds, standing out hard and solid as if cut in dark grey paper. This appearance will soon become familiar, and cause many an impatient sigh. The stream turns nearly due east, so every capfull was a head-gale. On the left bank rose the Povoação de Pernambuco, a hamlet of dingy huts nestling below the Ponto do Morro, the south-eastern buttress of the Serra Branca. Here the stream is broken into two arms by the rich and fertile Ilha do Urubú, a mass of grass, bush, and trees, one league long, and shaped like a leg of mutton, with the knuckle-bone down stream. The left channel is the broader, the deeper, and the straighter; we took the right, upon which the town is built, and at once grounded upon a sand-reef. Both sides are low and liable to floods; on the right, at a "port," denoted only by women with water-pots, is the mouth of the Sangradouro, which, during rains, admits canoes to the Sitio de Santo Antonio.

Presently we landed to inspect the town of Urubú, the "Gallinazo," the turkey buzzard. The riverine plain is here low and caked with mud, soon trodden to impalpable silt. A bush of the "Araticum" *Annona*—here the people mention three varieties of the shrub—shows the limits of the floods. Beyond it begins the vegetation of a dry and sterile land. I saw, for the first time, the "Favelleiro," that arboreous *Jatropha*, with sinuate leaves, described by Gardner. It varies between the size of a blackberry and an apple tree, and the stiff, quaint look at once attracts the eye. The leaves, resembling those of the oak, but dangerous to touch on account of their cruel, poisonous thorns, are, as often happens amongst "Campo" plants, only terminal, not axile, and planted in tufts at the end of fat twigs. The leaves are used to narcotize water, and to catch birds; the fruit, described as resembling that of the castor plant, supplies oil for the table. The rhubarb-coloured gum, with a faint perfume, is compared with gum arabic, and the wood is made into spoons. The Aloe family musters strong, especially the "fedente babosa," which Liliacea can only be rendered "fetid slabber chops;" the leaf-juice, mixed with oil, and called "Azeite de babosa," is used to correct baldness. A flock of dirty-white sheep, whose fleeces were torn to rags by the thorns, wandered about, seeking what they could devour.

A walk of 200 yards leads to the town, which is the usual long, shallow line, fronting to the north-west. The items are chapels, adobe houses, palm-frond huts, railed compounds and rude gardens, in which the cocoa-nut, with its rounded tuft, rose conspicuous. The main street, the Rua de São Gonçalo, runs along the whole length, and is raised above flood level. Two houses displayed the civilization of glass windows, amongst shutters, lattices, and squares of calico; of those twain one was a Casa Nobre.* I sent in my letter to the Juiz de Direito, Dr. Joaquim Rodrigues Seixas, who asked us in, gave us coffee, and gallantly exposed himself to a well-furnished fire of questions.

The judge complained that he had lost his memory by living in such a hole, and I can readily believe him. The climate, as so often happens in dry places, unpleasantly close to damp situations, is dangerous. Fevers, or rather "chills," are mild, yielding easily to native practice, tartar emetic and quinine;† they generally, however, end in spleen diseases. About August, pleurisies are dangerous when treated with the popular simples, fatal when exposed to scientific practice of "lancers and leechers," copious blood-letting, tartar emetic, heavy doses of nitre, and ptisane of a certain emollient Hibiscus,‡ the only harmless part of the "cure."

Santo Antonio de Urubú was formerly known as the Urubú de Cima, the upper turkey buzzard, opposed to the nether turkey buzzard (Urubú de Baixo), a pleasant name now changed to Propiá or Propriá, on the Lower Rio de São Francisco. According to the citizens, this place began the diamantine discoveries, which presently spread to the Chapada Diamantina, then in the district of the Villa do Livramento do Rio das Contas. It may be remarked, however, that in 1755, gems were discovered at Jacobina, on the eastern flank of the Bahian Chapada, and that the Prime Minister, Pombal, forbade the working of the vast buried treasures, for fear of injuring agriculture. The effect of these days of ignorance endured till 1837.

* It belonged to Sr. Gualteiro José Guimarães, a merchant who at the time of our visit was pilgrimaging to the Lapa.

† Sulphate of quinine is much used in the Brazil, and with little prudence by the people; thus while it relieves one disease, it often brings on another. Homœopathy

has done much good by preaching against the abuse, and by substituting pilules for doses of six to ten grains.

‡ Cozimento de Althéa, which Moraes translates Malvaisco (Hibiscus). The System (60) also gives Alcêa, and describes the use of the Sida althæifolia.

The judge congratulated himself upon the fact that, under his jurisdiction, there had been only four murders in four years. The municipality contains only 3051 voters; in 1852—54, M. Halfeld gave the district 731 fires, and 7204 of all sexes and ages. The town cannot contain more than 300 houses, and when full 1600 to 1700 inhabitants. They live and die in the greatest ignorance. I was astonished at the absence of all progress in these western outstations of the great Bahian Province, whose chief city was once the metropolis of the country, and whose seaboard is now one of the most prosperous and populous portions of the Empire. Everything that we see denotes poverty, meanness, and neglect; a Fazenda in the interior of São Paulo or of Minas is equal to a town here; and whilst the majestic São Francisco flows before these hovels, and there are excellent lines for routes both to the seaward and to the interior, the people have wholly ignored their communications. This is at once the cause and the effect of their semi-barbarism; they sit, calling upon that Hercules, the Imperial Government, but they will not put shoulder to the wheel.

Urubú will not be a capital. The port is bad, the lands are deeply flooded every year, and the Serra do Boqueirão is too far to be utilized. I heard, however, of olhos or water pools, which possibly exist in it, and these metamorphic formations may be found to be rich in minerals. All vaunted the fertility of the inner country to the east and to the south-east; they declared that four shrubs give three pounds of uncleaned cotton, formerly an item of export to Bahia. The so-called "Irish" potato is small but very good, and onions grow from their own and not from imported seed. In addition to the usual list, the soil produces cucumbers, ground-nuts (*Arachis hypogæa*, here known as Mandubi, Mundubi, or Manobi), and oriental Sesamum (*Gergelim* or *Jerxelim*). Oranges and limes* grow, and the tamarind, though stunted, produces an abundance of fruit, which the Africans know how to prepare, while the Bahians do not. I also heard of soils in which the "Mandioca brava," the poisonous manioc, spontaneously becomes "Aipim" or "Macaxeira," the sweet kind. The Judge and Juge de Paix, Dr. Claro Fran-

* The sweet lime (*Citrus Limonium*) is known as *limão doce*; the sour lime or

limetto (*C. Limetta*) is simply *limão* or *lima*.

cisco Negrão, also assured me that they had seen three colts got by stallions out of she mules, adding that the offspring was a most unsightly animal.

The principal "curio" shown to us was a bit of compact uncrystallized alum from Mocahubas,* a town fourteen leagues to the south-east. It is said to appear like stalactites in the caves which riddle the Serra do Machichi, and, as we were floating down stream to the north-west, the pilot pointed out a white mark which he declared to be the mine in a range right behind us. The people ignore the easy art of purifying their "pedra lume." The ruddy resin of the Angico Acacia, which here forms their forests, was vaunted as a pectoral and an expectorant; and the yellow gum of the Jatobá, light as amber, serves to caulk boats. The chief of the small industries is weaving hats, for which the Aricuri palm† supplies material; here they are worth 0 \$ 200, and they sell down stream for 0 \$ 500.

We walked up the Rua da Palha, which runs parallel with and inland of the São Gonçalo; two lines of very humble houses led to the large square behind the Matriz of Santo Antonio. This fane is built of brick, mixed with boulders (rolados) from the opposite Ponto do Morro, and with iron-stone from the river banks; as yet the belfries are wanting. There is a Casa de Camara, a detached jail and a vicar-general's house, but no such things as parish registers or public documents. Here the dry, sandy, and silty plain is covered with the Quipá, a dwarf cactus, about eight inches high, with fine, hair-like, but sharp thorns, radiating from white spots. Its flat plates contrast curiously with the tall "organ," the five-sided chandeliers (*C. candelabriformis*), the short, thick cylinder (*C. brevicaulis*), and the serpent cactuses around it. My friends showed me upon the Quipá what appeared a white web, but after crushing it, the fingers were stained with a rosy-pink juice. This is the indigenous cochineal-insect, and it extends throughout the dry riverine regions. It is looked upon, like most unknown things, as a magnificent mine of wealth, but years must pass before it can be made useful in commerce. I told the bystanders about Tenerife, which had imported from

* In Mr. Keith Johnston's map, "Ma-caúba."

† Commonly spelt "Ouricury," also written Aliculi, Aracui, and Arari (*Cocus*

schizophylla). According to the System, the juice is used in Bahia for curing ophthalmia.

Mexico the large succulent nopal, and the fat insect. They manfully supported their fellow-country growth, the Quipá,* which was juiceless as a shoe-sole, declaring that during the rains it swells to thrice its present size. Here, as elsewhere in the Brazil, men hold the "esprit du mieux ennemi du bien;" to advice they are untameable as flies; their minds must grow, like those of infants or "Indians," by example rather than by precept, and though intelligent and imitative, they always require improvements to be subjected to the faithful eyes.

Our friends "convoyed us a bit," gave us oranges and limes, and saw us off at 11 A.M. The north-east wind, cold in the burning sun, blew in strong blasts (refegas), frequently repeated till 3 P.M., and hindered progress. And now we noticed that a complete change of soil and formation, climate and physiognomy, had taken place—the frontier being Urubú, and its portal of hills. The limestone country, with its great productive powers, and the rich Maçape clay, have passed into sandstone, and the wooded banks have altered to a "Carrascal," or low bush. This ground in places produces the small maize, but agriculture and breeding flourish only in the "Geraes," or inner lands. The river, which before could spread far over its wide, flat valley, is now narrowed, and the overflow is checked by bounding ridges, through which the larger tributaries must twist; the eastern wall will last with breaks till near the Great Rapids, the western till the Villa da Barra. There is no general name for the range, each place christens its own section; that to the right is usually spoken of as "A Serra," while near Urubú the opposite wall is the Serra Branca; it then becomes Serra de Santa Catharina, the O Furado (or Serra Furada), the pierced, and so forth. The effect of these containing walls is to form a funnel, up which the Trade, now to be our deadly enemy, blows violently; the greatly increased evaporation is carried up due south, hence the lands on the higher stream are drenched, where here all is bone dry.

These Serras are disposed in straight and in slightly waving lines, which viewed from the stream appear to be great lunes and crescents, approaching and diverging. The regularity of their shape, the flatness of the summit-line, and the steps and benches, which run in straight course along them, suggest that they were

* The fig of this cactus is eaten, but it is full of seeds.

formed under water, and that presently they rose to be river branches. As the bed, whose general course is from south to north, winds between them, the ridge of one side is often confounded with that of the other. From the plains connecting their feet with the stream-banks, rise detached and mound-like knobs, here single, there in groups, now perpendicular to, then running diagonally from, the bounding Serras; in places they form bluffs, striking the bed at right angles. The material of all the heights is sandstone, in places revetted with quartz, and containing, according to the people, gold; we often see the strata exposed in the precipitous flanks facing the river. Further down we shall find iron in the lowland lumps. The surface of these formations is a poor, shrubby growth, chiefly thorny, and here the giant Cactus, the Acacia, and the Mimosa are kings.

About 3 P.M. we touched at Estrema on the right bank, which, though high, is swept by great floods; here was a whitewashed house, a few huts, and various "timber," post and rail, and snake-fence. We had been told that the owner had a goat for sale; he was absent, and we were disappointed. At sunset we made fast to a corôa, opposite a little hamlet, the Riacho das Canôas. The crew was living upon a bit of dried "bacalhão, or salted cod, whilst the fish leaped and splashed in all directions; they had no bait. Ashamed for them, I made the youth, Agostinho, arm a hook with a bit of meat, and in a few minutes we had enough for a day's food. The worst was the Curuvina;* the Matrinham† is not bad, and a kind of Pirá‡ bit freely.

Oct. 4.—Sunset and sunrise had both been red, nothing could be more delightful than the dawn, but we felt that, as in Hindostan, the noon and the afternoon would make us do unlimited penance. The gusts and raffales which blew at times during the night, fell into a fitful slumber, which, however, did not in any way delude the watchful suspicions of the pilot. Here the river itself offers prime conditions to the breeze; it will broaden to a

* Gardner writes Curvinha, M. Halfeld has Caruvina. The fish is about two feet long when full-grown, scaly, with pale, soft meat, anything but delicious. The head contains a white bone, which is pounded and administered for various diseases.

† Gardner writes the word "Matrixám;" it is one of the Salmonidæ, smaller than the Doualo, and very common in the

upper waters. Yellow and scaly, it grows to the length of three to four palms, and is a favourite food with fishermen.

‡ Also called Tamanduá; it is a long-headed fish, with light-blue tinge, about two feet in length, and tolerably good eating. One variety is the Pira de Couro, another the Pira-pitanga (M. Halfeld, Pri-petinga). There is also a sea-fish of this name.

mile and a half, and split into channels, often of equal depth, and both filled with stranded trees and snags. The river islets greatly increase in size; we shall presently pass one about a mile in breadth, and five miles long. These formations are mostly of sand, covered with thin humus, green with grass, in places cultivated, and bearing tall trees, amongst which the *Grão de Gallo* is conspicuous.

After a few minor features,* and a prudent halt at an "espera" on the Bahian side, we sighted at the bottom of a "big bend," the *Arraial do Bom Jardim*. Tiled huts appeared on the right bank, a wave of higher ground offsetting from the *Serra*; they lay some five miles behind or to the east. This range was patched with green, suggesting that it is better watered than the hills about *Urubú*, and the nearer surface appeared as if the bush had been burnt, or that a cloud was fitfully shading it in patches. Dark streams and sheets, apparently spread by an eruption, invade one another, alternate and strive for mastery; at last, puzzled, I ascended a hill side, and found the gloom to be produced by a matted aromatic shrub, with leafless twigs of umber-brown, and growing between stones, set off by the light of golden yellow grass.

The left bank opposite *Bom Jardim* is a lower level, a mass of tangled forest, cut by many an *ypoeira*, and nothing but an embanked causeway could render it passable. The bend is fronted by the western containing ridge, *Serra Furada*, a tall and regular line, running north and south; here it is some seven miles distant from the stream, but below only about a league. On the water-side appeared the hamlet, *Passagem (do Itahy or Bom Jardim)*, with its ruinous chapel, *N^a S^a do Bom Sucesso*. Where piles can be fished out of the stream, no one thinks of planting them under their floors, and of thus securing ventilation and escape from the floods.

We landed at the *Riacho de Santo "Inofre,"*† above the set-

* After one hour we passed the large green *Ilha do Saco*, and on the left bank, when the thalweg is to the right, rises the *Fazenda (H., Povoado) do Saco do Militão*. A rugged line in front, apparently on the *Pernambucan*, really on the Bahian side, presently shows peaks and distances, and in the pure clear air it seemed to be at no distance. Another hour brought us to the

Ilha do Gado Bravo (H., Ilha do Barreiro), some two miles long. We took the normal line, the western channel, and facing to the north-east, we were compelled to anchor by a head wind, which, meeting a current like a mill-race, produced an angry tide up.

† In *Mr. Keith Johnston* the "*R. S. Onofrio*" is marked with dots, and made to

tlement. It rises to the south-east, draining, with the aid of its affluent, the Boqueirão, the north-western face of the Serras das Almas de Sincorá and dos Lenções,* the eastern slopes forming the great Paraguassú. Small canoes ascend it for some leagues, during the floods, to the Vargem de N^a S^a da Guia. During the hot season it is nearly dry, but leats and courses would readily create reservoirs in the lower levels. The mouth of the green avenue is about forty feet broad, the left jaw is a sandpit, the right is a stony platform, composed of ferruginous "cánga" and pebbly conglomerate, pasted with hydrate of iron. In time it will become a steamer-pier; the stream swings to it, always allowing a deep-water approach; it is flooded for a few days during the year, but a levée higher up would, if necessary, obviate the inconvenience. At present it is used only as a ground for washing linen. The shallow pits and pot-holes supplied the finest sign of "diamantation;" the people, who leave it unworked, declare it to be brought down by an eastern influent, the Riacho do Pé da Serra, where they still dig gold.

Below the mouth of the stream lies the little arraial. The water froths against pure pottery-clay of dull, dead white, worn into holes by the tongues of cattle; in the upper levels it is mixed with sand. The settlement consists mainly of a single line, whose railed backyards extend to the river-brink. There are scatters of houses inland of this line, including a ranch for travellers. The total may be forty, whereas in 1852—4, there were 300 inhabitants under 103 roofs. The people live by breeding cattle, by agriculture, and by fishing. We bought a three days' provision of the fine Caçunete † for ten coppers (0 \$ 400). Behind the village lies a sandy plain, about 100 paces broad, with thin pasture, and showing symptoms of flood. Beyond it the ground, thickly bushed over, rises high above all inundations, and here will be the site of the settlement. At present it is occupied by the vicarless church, N^a S^a da Guia, whose windowless front had been freshly whitewashed. Like the hamlet it faces to the west with southing. A heap of torrent-rolled

come from the western versants, which send to the Atlantic the Rio das Contas.

* In a map lately published by the concessionees of the Paraguassú Valley line, the "Paramirim" is the main western drain corresponding with the Paraguassú to the

last. The details in the text were supplied to me by the people of Bom Jardim, and therefore are open to doubt.

† A fish with few spines, highly prized, and supposed to be a kind of Surubim.

stones (pedras de enxurrada) lay at the wall-foot, and at once showed the origin of the diamonds and the gold. There were large pieces of laminated quartzose sandstone, in fact, true Itacolumite. Mostly it was reddish, like a half-burnt brick, exceedingly compact, and streaked and dotted with finely disseminated mica; other specimens were purely white, and their coarser texture showed the grain distinctly. The formation is found upon the hilly Geraes, three to six leagues to the north-east of the river's right bank, the strata are often too thick and solid for use; it supplies, however, the country-side with the slabs for flooring massive ovens, and it equalled in size those "Pedras de Furno," which I had seen near Camillinho of Diamantina.

We were much prepossessed by the general appearance and the capabilities of the land; even the phlegmatic German exclaims, "É esta uma das mais agradaveis paragens à beira do Rio de São Francisco." The people appeared comparatively healthy after the wretched pallid faces of Urubú, and even the horses seemed better bred. The prospect is charming, and this must always form a great consideration, when estimating the future value of a place. The channel is narrow, compact, and unencumbered with shoals, while the current is not too rapid; sweeping to north-east, and frequently to north-west, it throws its main current against the bend, whilst the general wind, being easterly, and blowing over a high and dry country, the evils which might arise from ypoeiras, bayous, lakes, or lakelets in the low riverine valley are corrected. Building-room is endless, material abounds, and in the vicinity are hills which will allow change of climate.

Bom Jardim, a name of good augury, is the only site yet seen which deserves to become a city, or which can pretend to be the capital of the long-expected province or territory. In some points, especially as regards river-navigation, it is better than, in others it is inferior to, its rival down-stream, Chique-Chique. The position is central, about equi-distant from Januaria on the south, and from Joazeiro to the north. It is nearly due west of São Salvador, metropolis of the opulent commercial province of Bahia; it is nearly due east of Palma, one of the most important cities, in agricultural and cattle-breeding Goyaz, where the navigable Paranan or south-eastern branch unites with the Rio

Maranhão to form the grand Tocantins. It thus connects with the Atlantic by two roads, more and less direct. The water-way is down the Rio de São Francisco. The land route is *viâ* the line of the Paraguassú River, which passes by Cachoeira city, the head of Bahian steam navigation. I will say nothing about the steam tramway, which proposes to run along the southern valley of that stream, as the ground is absolutely unknown to me beyond Cachoeira. A glance at the map, however, will show that this has the advantage of a riverine plain, whereas both the Pernambucan and the Bahian Anglo-Brazilian main-trunks are distinctly "cross-country." Meanwhile it has been strongly advocated by Mr. John Morgan, of Bahia, who has had the advantage of a thirty-five years' residence; and the works have, I am told, commenced under every advantage.

Finally Bom Jardim connects by land and water with that Brazilian Mediterranean, the Amazons; and we may safely predict for it high destinies, of which it is at present naïvely unconscious.

CHAPTER XXI.

FROM THE ARRAIAL DO BOM JARDIM TO THE VILLA DA BARRA
(DO RIO GRANDE).

SIXTH TRAVESSIA, 29½ LEAGUES.

THE CARNAHUBA, OR WAX-PALM.—VINTENS OFFERED TO SANTO ANTONIO.—
FIRST SIGHT OF THE ARASSUÁ RANGE.—THE GULL-FAIR.—BIG CRANES.—
THE TOCA, OR CAVE OF SAINT ANTHONY.—THE THORNS.—THE VILLAGES
OF THE PARÁ.—THE LEATHER-COAT BIRD AND THE CHAMELEON.—
APPROACH TO THE VILLA DA BARRA DO RIO GRANDE, A PROPOSED
CAPITAL.—THE RIO GRANDE AN IMPORTANT INFLUENT.—THE VILLA
DESCRIBED.

Onde a natureza

Bella e virgem se mostra aos olhos do homem
Qual moça Indiana, que as ingenuas graças
Em formosa nudez sem arte ostenta.

(*Poesias B. J. da Silva Guimarães.*)

As the wind fell we put off, and presently landed on the right bank, below Cachoeirinha. At this point a short projection of stone makes the water dash and murmur, but in no way injures the thalweg. We broke through the tangled bush and found a sandy plain between the stream and a knob of thickety sandstone hill, distant about 100 paces. The surface sloped away from the river-ridge to a hollow paved with flakes of mud; it must be a water-course during the rains. All the ledge was cut by paths leading to the various settlements, cattle grazed the thin grass, and the sheep besides being fat, were woolly and not hairy.

Amongst the Angícos and the Myrtaceæ, one of which was mistaken by the "Menino" for a Jaboticabeira, now alas! no more, we observed a white-blossomed bush, much resembling in perfume and physiognomy, English "May." And here we saw for the first time in situ the beautiful wax-palm known in the Brazil as Carnahúba (Carnauba), and Carnaíba (Corifa cerifera, Arrud. Copernicia cerifera, Mart.), the Caroudaï of Spanish America. Its habitat is the riverine land upon the streams of the Pernam-

buco, Parahyba do Norte, Ceará and Piauí; during the last few years it has been introduced into gardens near the coast.

The Carnahúba, when first appearing, is a mere bunch of fronds projecting above the ground. As it advances the trunk is clad in a complete armour of spikes. The fronds, as they fall off, leave their dull brown petioles in whorls or spirals winding round with or against the sun. When not higher than a man the youngster's pith or heart yields, when crushed in water, a fecula somewhat like tapioca, white as manioc, and useful in times of drought or famine. At a more adult age it puts forth a thin shaft, smooth, clean, and grey, like dove-coloured silk, which contrasts strangely with the six feet of corrugated *chevaux de frise*—the magnified thistle—which protects its base. After the fifth year it assumes its full beauty, the cruelly-thorned leaves distinctly fan-shaped, and with long rays rising from a spindle which attains a maximum of thirty-five feet, are peculiarly picturesque. In old specimens the trunk is raised, after the fashion of palms, upon a lumpy cone of fibres or aerial rootlets, a foot high. Some eccentric individuals have narrowings and bulgings of the bole, others encourage creepers to form in masses upon the frond-petioles below, and suggest the idea of a tucked petticoat. The vitality of the tree is great, it resists the severest droughts, and I have seen instances when the trunk lay upon the ground and the upturned head was still alive, fighting to the last. It grows to a great age; people mostly decline to mention the number of its years.

The Carnahúba is justly considered, both for man and beast, the most valuable palm of the Sertão. Its gum is edible and the roots are used as *salsaparilla*. The mid-rib is rafted down the streams for fences, the fibre is worked into strong thread and cordage. The leaves are good food for cattle,* they form excellent thatching, and the fibre is made into "straw-hats," ropes, and cords, for nets and seines. The fruit is in large drooping clusters of berries, which in places strew the ground. When green the nut resembles a small olive; it ripens to a brilliant black, and attains the size of a pigeon's egg. The pulp, boiled to remove its astringency, becomes soft like cooked maize; it is considered good and wholesome, especially when eaten with milk, and

* I have read of, but have not seen this: the part usually given to cattle is the *miolho*, or pith of the young tree.

animals readily fatten upon it. The ripe berry is usually eaten raw.

The most notable property of this palm, according to Koster, was discovered in 1797, by the Portuguese naturalist, Dr. Manoel Arruda da Camara;* the latter communicated it to Frei Jozé Marianno da Conceição Vellozo, who published an account of it in the "Palladio Portuguez." The leaves of the young tree, when two feet long by about the same breadth, are cut and dried in the shade. They then discharge from the surface pale grey-yellow dusty scales, which, melted over the fire, become a brown wax. Cereous matter is also procured by boiling the unripe berries,† and chiefly by scraping the central spike, which prolongs the tree. The wax occurs mixed with heterogeneous substances, bark or fibre, and it loses considerably by sifting. The material is tasteless and soft to the touch; the smell has been compared with that of newly made hay. Its chief fault is its brittleness; this, however, is remedied by mixing with three-parts of vegetable one-part of animal wax, or 1-8th to 1-10th of tallow. Carna-húba candles are made upon the seaboard; but I saw only one "dip" upon the Rio de São Francisco, where, a little lower down, the palm is found in forests. The colour was that of rhubarb, yellow or brown sugar, and the light was not to be compared with the worst "Paraffine."‡

Another league placed us at the head of the Ilha da Pedra Grande, the largest yet seen, and where the river contained a greater breadth of land than of water. We took the right-hand channel, although the left is marked in the plan; perhaps the crew did not wish to land at the cave of Santo Antonio in a rock lump (Morro da Imagem de Santo Antonio), near a remarkable

* He published at Rio de Janeiro in 1810 two brochures, which were analysed by Koster. Appendix, vol. ii.

† This also is from books. I do not believe that the fruit is used to extract wax.

‡ Koster tells us (quoting vol. xxxi. p.14, Trans. Philos. Soc. 1811) that the Count of Valveas (the minister Pombal, Count of Veiras) sent from Rio de Janeiro to Lord Grenville a specimen of the "carnaubaa" wax as an article of export, produced between N. lat. 3°—7°. The brown-yellow colour of the dust was attacked with weak nitric acid, and exposure to air on glass

plates. After three weeks it became a pale yellow, with a surface almost white. The same change was effected by reducing it to thin plates, and dipping them into an aqueous solution of oxymuriatic acid. Made into candles, with properly proportioned wick, it burned uniformly and with perfect combustion. It was found to differ from other species of vegetable wax, such as that of the *Myrica cerifera*, lac and white lac. The latest authority upon the subject of this palm "Notice sur le palmier Carnauba," was published at Paris, 1867, by Sir M. A. de Macedo, 1 vol. 8vo.

buttress, the Morro do Picháim. They contented themselves with throwing a vintem into the water, reminding me of my Beloch escort and their slender gift to the holy but angry Shaykh, who lies upon the banks of the Pangani River. We cheated the mosquitos by anchoring upon a sand-bar below the Fazenda do Barro Alto, and were regaled with the music of song and drum, which extended into the smallest hours.

October 5, 1867.—Appeared in the yellow of dawn a pretty site, the Limoeiro Fazenda, backed by the Serrote do Limoeiro, an assemblage of sandstone heaps and hills, here and there tied and compacted with ribs and ridges; its containing wall vanished to the north-west. From the Fazenda Grande further down, a man put off, bringing for sale a neat new saddle, like the Egyptian donkey pad, and priced at 8\$000. At “the Carahybas” a boat-load of the last night’s revellers greeted us with shots, and we returned shouts. The hierarchy of the river formerly was established with a certain rigour which, however, is fast disappearing before the “levelling tendencies of the age.” The canoe was expected to halt and compliment the raft, by trumpeting or blowing the conch; the raft showed the same deference to the barque, and the saluted craft passed proudly on without deigning reply.

Shortly before noon, as we passed the islands do Meleiró and do Sabonete, the wind fell to a dead calm; all Nature seemed to take a siesta, the air was cloudless, and the long level in front showed a silver plate of water narrowing near the horizon to a thread. Behind lay a charming prospect, strata of golden sand supporting emerald bush, a warm ruddy buttress flying from the back-ridge of sandstone, a mound of purple distance, and a far perspective of sky-blue peaks. About noon we opened the Riacho das Canôas;* this is the half-way house for the pilots of Joazeiro, as is the Villa da Barra for those of Januaria, and thus the boats overlap.

The stream, now bending east, showed a brown saddle-back, apparently on the left bank, and quite close; it was the Morro do Pará, on the right shore, and distant. At its foot

* Mr. Keith Johnston gives the “R. Canoas,” making it head near the Rio do Corrente to the south-west. It is a brook of little importance. At the mouth is “Passagem,” a small well-situated settle-

ment on a wave of ground; it lives apparently upon a ferry-raft used by passers and animals, bound to the Bahian Diamantine range and to the provincial capital.

seemed to nestle the Penedo da Tóca, above yellow with dry tufty grass, and below dark, with water-glazed sandstone. The far distance was bounded by a broken blue range, on the Bahian side by a tall ridge with a pyramid peering above it, a central saddle-back connected by a low wall, with a lion couchant on the left. This is our first view of the "Serra de Arassuá."

As we approached the Penedo buttress, the sudden curve made the stream run swiftly, and form, near the left side, an eddy and a boil, which the pilots called a "Remanso." A sand bank to the right showed a kind of gull-fair. The larus and the sterna, essentially wandering and restless birds, may have been trooping preparatory to a jaunt during the approaching rains. Amongst them the rosy Spoon-bill (*Platalia Ajaja*) gathered in patches forming a flower bed; and the Guara, or red Ibis (*Ibis rubra*, or *Tantalus rubra*),* with still brighter plume, reminded me of flamingo-companies. Amid the variety of gloomy divers and snowy herons, large and small, stood aloft the Jaburú (*Jabirú*),† here also called Tuyuyu (or Touyouyou, *Mycteria americana*, Linn.), about four feet tall, with a bare jet-black head capping its purely white plume. It haunts the banks and sand-bars, where it passes the time in fishing;‡ hence the people do not eat it, declaring that it tastes of fin as much as of feather. We shall often see it all down-stream, especially in the morning, when it wings its way in regular triangles, flying low enough to be shot down; and amongst the chatter and the screams of the smaller birds its loud hoarse voice sounded "like the chaunting of a friar." Mr. Davidson compared it with the sand-hill crane of Florida.§ I could not but remember the "adjutant-bird" of old.

We paddled to the left bank, were swept down-stream by the eddy, and poled up to the landing place, at the base of the rock. A rough cross to the east directed us to the "Tóca de Santo

* This ibis was of importance to the "Indians," who used its fine plumes in their full dress. There are several kinds, the white and the green (*Tantalus Cayannensis*), which the Tupys called Garatuna, blue or dark Ibis, and which was corrupted to "Carao."

† Mr. Bates (i. 282) mentions the Jaburú-Moleque (*Mycteria americana*), a powerful bird of the stork family $4\frac{1}{2}$ feet in height.

‡ Prince Max (iii. 146) heard that it was a bird of prey which devours other

volatiles. This the pilots deny. Lieut. Herndon found the Tuyuyú grey on the Amazons; the pair "which he succeeded in getting to the United States were white." He also mentions a "large white crane, called Jaburú" (p. 229).

§ Other common species are the white *Conrica* (*Ciconia americana*). A *Tantalus albicollis*, with white and black plume, and loud harsh voice, is mentioned by Pisen and Maregraf. The Garça real (*Ardea pileata*, Lath.) has a black head and a yellow-white coat.

Antonio—holy caves are now becoming banal. This tunnel, seven paces long and six feet broad, opens to the south a mouth eight feet high. The ceiling is pierced with a natural shaft; the floor is of dry caked mud, and the highest water-mark is ten feet high at the entrance. We found inside a flight of bats, whose perfume was the reverse of pleasant, and a taper of the usual brown bees'-wax, curled up like the match of a matchlock, was stuck up against the wall. The formation is a hard, red, laminated Itacolumite, with dots and particles of mica; the dip is nearly vertical.

Seen from the stream in front, this "penedo" appears a sharp roof-ridge of stone, somewhat like a cocked hat, tapering to the north-west. Externally the profile has a strike nearly north and south, and cleavage lines dipping 45° , split by other fissures nearly at right angles. We failed to ascend the eastern wall, which was worse than precipitous. Where it thins out, however, the slope is easy. The summit, 100 feet above the plain, bristled with slabs serrated and set almost on edge. The Itacolumite was striped with broad bands of white quartz, and the junction may be the birth-place of the diamond. The stone would readily have cooked a beefsteak, yet it sheltered the goatsucker, which rose in pairs, flitted past as if thrown from the hand, wheeled suddenly above ground, and hid itself nestling a few yards from our feet. On these rocks also the coney had his refuge. The brown Moco (*Caira rupestris*)* peeped out of its home, stared curiously from side to side, and, scenting danger, sprang back with the action of the rabbit. The riverines hunt this animal, and declare the flesh to be excellent eating. It is a congener of the tame variety which, preserving its voice, changed its coat during the process of domestication, and deceived the world by calling itself Guinea pig and Cochon d'Inde. I was simple enough to ask, when in Guinea, whether it was at home there.

Santo Antonio has not been so successful with the thorns as was St. Peter with the frogs. We scraped unpleasant acquaintance with the Macambira, a Bromelia whose thorns, shaped like a bantam's spurs, are sharp as awls. The gregarious Quipá Cactus

* It was called Kerodon by M. Fréd. Cuvier, and is mentioned by every traveller in the Brazilian interior, from Koster to the present day. In the Sierras of Peru

Lieut. Herndon (chap. 4) seems to have found a dish of stewed Guinea pigs very good.

did its little best to sting. The ugliest customer of the nettles by far was the Urticacea which the men here called *Cansanção bravo* (*Loasa rupestris*), a poison nettle. The tall stem was garnished with short sharp bristles which seemed automatous, finding their way through the air. Worse than any *Dolichos*, they penetrated the skin in dozens, caused a violent itching, and raised an eruption, which disappeared only after suppuration. The only non-spinous tree that grew upon these rocks was a stunted and silvery *Cecropia*. Thus the ancient "Indians" found growing together the two shrubs, large nettle and the sloth-tree, which supplied fibre-thread for their thick, heavy, and enduring cloths.

The rock top gave a fine view of the glorious river-plain below. The stream, dotted and patched with islets, made a long sack from south to east and north. The *Morros do Pará* and da *Torrinha*, on the right and left, seemed planted to keep it in place. To the north-east the *Arassuá* range displayed its huge folds and slopes, and far to the south-east giant ramps stretched between earth and cloud. Between the blocks was a dead level which, according to some informants, extends as far as the northern breakwater of the great *Paraguassú* valley.* The riverine plain is populous and well cultivated. It showed the usual features, hut clumps, bright green clearings, dark green woods, and yellow grass, which four several prairie-fires canopied with a long purple awning of smoke.

Once more shooting across the eddy, we reached the elbow upon whose right bank stands the *Povoação do Pará*; where "Barboza of the Girls" struck up the "riling" ditty—

Não me querem bem, não me querem máu
Pará e longe, não vou lá.

The mouth of the *Para-mirim*, or, as the pilot called it, *Paranamirim*,† opened with a line of green to the south of the settlement, and formed a sand-patch upon which cattle basked. The houses of red clay, and ashen grey thatch, set off by a few domes of fresh-foliaged trees, ran in lines at the south-western foot of the umbre-

* The road passes by a town, known as *N. S. do Bom Caminho*: despite which, many informants complained that it was in a desperately bad state.

† This is the *Paramirim* which in Mr.

John Morgan's map encloses the *Riacho of Bom Jardim*. According to the people it is of no importance, and certainly the mouth does not argue a long course.

coloured hill. The next feature was the Morro da Torrinha, a stony ridge beginning at the water-side and forming a double tongue, the more distant lump being the higher. At the point were tall trees, and above rose brown bush. This is the Fazenda laid out by the Commendador Antonio Mariani, and the ten huts and houses to the water front are so disposed that the people can fly from the floods to the knob-top. Passing sundry islands, all more or less inhabited, we anchored at night-fall near a low sand-bar below the Ilha do Timbó. Our visit disturbed hundreds of water-fowl, and again at night we heard a concert of drums and voices. There is no want of "jollity" here. Yesterday, however, a blind white had begged alms with the true drone and whine of the professional "asker"—an event rare enough to be chronicled.

Oct. 6.—At night, the Vento Geral gave way to the westerly land breeze, and the sensation was of unusual cold. When we awoke the river had risen some eighteen inches, floating away one of our paddles, and placing us at some distance from the sand-bar.* These "repignetes," as the barquemen call them, are swellings and subsidings preliminary to the flood of the year; according to the pilots they occur three or four times in succession. The morning was pleasant, but it showed distinct signs of wind. As the sun, between 6 A.M. and noon, warms the earth and water, the cold breeze comes up with puffs, and blows hard till about 2 P.M., when the equilibrium of the atmosphere is restored. Then by slow degrees succeeds a calm, which often lasts till evening. Near Remanso we shall have alternately one day of wind and another of rain.

Setting out at dawn, we presently sighted, from a distance of four to five miles, the Serra do Brejo, or western containing-ridge, trending to the west, and bending north; it is faced by the Assarauá, rising like a gigantic insulation, and capped by a high white cloud, like a second storey of island in the light blue sky. The near banks were flat, grassy ledges, producing an abundance of the hard, gnarled, and dark-barked Jurema Acacia.† The

* We had, I have said, an anchor with us, and this proved of no little use. Generally rafts, and even barques, are made fast to upright poles, and many an accident has taken place from their breaking loose. The men work hard, especially if they wish to

reach a town in time for some fête, a watch at night is never set, and the craft would be amongst the rapids before the sleepers would awake.

† This Acacia was first noticed about Malhada and Carunhanha, where it is sup-

trees were tasselled at the branch ends with nests two or three feet long, bags of dry and thorny twigs, opening with a narrow entrance at the upper end, and comfortably lined with soft grass. Probably, like the clay hut of João de Barro, it receives an annual "annexe." Here the tenant is called *Casaca de Couro*,* or "leather-coat."

We had to battle with the winds and the wavelets, which rose as by magic; and off the "Angical" Fazenda the enemy had the best of the affair, and kept us at halt for three hours. This is a large breeding estate in a sack on the right bank, which is sandy and produces fine Cocoa-nuts, Carnahúbas, and Quixabeiras. From a point a little below this, canoes during the floods make a short cut across country to the Ypoeira of Chique-Chique. Approaching the Ilha do Camaleão,† of the Chameleon, we saw ahead, the white houses of the settlement, attached to a huge pile, projecting over the green left bank. The northern approach to the Villa da Barra do Rio Grande is by the narrow "Corredeira," or channel, formed near the western side by the long thin island-ship, the Ilha do Laranjal; to the east is the main line of the São Francisco, a mass of sand-bars and beaches. The course is then across the mouth of the Rio Grande, which here runs to the east with northing, and discharges into the São Francisco. Its right jaw pushes out from inundated thickets a clay point thinly covered with bush, and in the centre there is a shrubby island. The current at the confluence, where 1200 feet of breadth rush to meet 6100 feet, strikes heavily upon the Pontal, or projection which faces to the south-east, and separates the two rivers. The material, fortunately for the town, is a perpendicular bank

posed to give the finest charcoal. It will become more abundant as we approach the Great Rapids. The people speak of two qualities (species?), the Jurema (alias Gerema or Geremma, *Acacia Jurema*), and the Jurema Pesta. The ample growth of *Acacias* and *Mimosas* Angico, *barbatuirão* and *Ingá*, combined with the saline soil of this part of the valley, prove how well-fitted it is for camel-breeding.

* It may be the same as the *Gibão de Couro* (leather-jacket), a gobemouche (*Musicapa rupestris*): I did not see the bird. Prince Max. (iii. 95) described a similar nest of the *Anabatis rufifrons*, or *Sylvia rufifrons*, with an opening at the

lower end: he found the bird in the upper storey, and below it a kind of bush-mouse (*Rat des Catingas*, *Mus pyrhorhinus*).

† The author of the *Caramurú* asserts (vii. 58) that the *Camaleão* feeds upon wind. In the Brazil, however, the Chameleon is a lizard (*Lacerta iguana*), which changes a little the colour of the skin, but which cannot be compared with the true chameleons. This animal in the wilder parts of the Sertão is considered to be more delicate than the chicken; but the people are not particular, they devour the ounce, the cayman, the wild cat, the *Siriema*-bird, and other strong meats.

of hard clay, strengthened with hydrate of iron, at this season six feet above the water; it extends some leagues down the left side of the Rio de São Francisco. From the mildest of heights we can see the low-lying valley of the Rio Grande winding up from the south-west, where there is a break in the blue curtain which subtends the plain. It is a flat Delta of dense vegetation, at least twenty miles across in a bee-line. These confluence towns run a double risk, from the main artery and from the influent; the heavy downfalls of rain are often local deluges, and thus one stream may do damage when the other is peacefully inclined. During the last night the Rio Grande rose several inches, when the São Francisco fell: the people declared that they never saw this happen so early, and began to predict that water would be wanted when most required.

The town runs from west to east, along the northern bank of the Rio Grande,* beginning about a mile up-stream, and extending to the "Pontal." It has a mean look, the houses are low and small, with roughly railed courts on the water-side, where the floods prevent building, and sundry are unfinished, mere tiled roofs without walls. Here and there, on the higher levels, is a platform of rough stone and lime brought from Porto Alegre, six leagues down stream; it supports a whitewashed back wall or a tenement half-white, half-yellow, set off with pea-green shutters. The Porto,† a dirty landing-place of sand and clay, is the common sewer; in the mornings it becomes a fish-market, during the day seines hang on poles to dry, children pelt the dogs, the asses, here a "feature," and the long-legged pigs, ducks and fowls, wander about in com-

* This great influent has been surveyed by M. Halfeld, who devotes to it three charts. Well deserving the name, it drains the eastern side of the northern dividing range of Goyaz. The mouth is in (approximately) south lat. $12^{\circ} 10'$, and west long. (Rio) $1^{\circ} 3'$. It is navigable for 45 leagues to the Villa do Campo Largo, where it is still 350 wide; its depth is about 4 metres, the current 0.77 per second, and the discharge about 190 cubic metres, or nearly double the Seine at Paris. Beyond this point there are difficulties, but small "dug-outs" go 20 leagues further to Limoeiro. The Rio Preto, its great north-western fork, gives a navigable line of 32

leagues *viâ* Santa Rita to Formosa; but this is a troublesome journey. From these lands are exported rice, farinha, maize, legumes, rapadura, and other provisions: some salt is also made at the Barra do Boqueirão, 16 to 18 leagues from the embouchure of the Rio Grande. The Rio Preto is the stream whose waters Lieut. Moraes would throw over the mountains into the Parnaguá Lake. I have alluded to this wondrous project in Chap. 26.

† I do not understand what M. Halfeld means by "este porto parece ser artificial." It is rare to find anything more wretchedly natural.

pany with half-tamed cranes, white and ash-coloured, and the women wash in company. Water for household use must be brought from up-stream: here it is dark, foamy, and tainted. A number of canoes and barcas ride at anchor attached to their poles, and a favourite conveyance appears to be the "balsa," or raft of "Burity" fronds. The long bundles are lashed together in five or six places, and are kept in position by cross-pieces; they rise about one foot above water, and, being elastic, they are less likely to be injured by shoals and rapids. They carry down the river huge "pipas," or hides full of grain, and similar "trem:" at their destination they are broken up to make posts and rails, which are tolerably durable.

This is a great "festa," the peculiar day of the Padroeiro, or patron saint, "S. Francisco das Chagas." As we approached the town, we saw the F. F. in accurate black, riding small horses and smaller mules, along the unclean Praia to join in the office. The rest of the crowd was in hats of sorts, chimney-pot, Burity-straw, or felt, and in brown or white cotton clothes. There was the usual grotesque old negro, wearing a caped cloak of the thickest blue broadcloth, in an atmosphere of 98° (F.). The women are all in church till the ceremony ends, and the men cluster at the door like a swarm of bees. Presently the "function" ended with a discharge of fireworks—it was still broad daylight—which seemed to administer much spiritual comfort. A procession issued to perambulate the streets, and the dignitaries, by their red and white "opas," or short cloaks, caused no little sensation. Girls dressed in the brightest coloured stuffs, and small youths in the lightest of clothing, and very little of it, charged wildly about the place, dodging round the corners to "catch another sight." I visited in the evening the little chapel of Bom Jesus, which has stumps where towers should be—a man in uniform without epaulettes. The illumination was not brilliant, but it showed me that the feminine element predominated: the principal duty seemed to be to kneel down before a table, and to kiss the Saint's very diminutive feet—the principalest to deposit a few coppers upon an adjoining table. The night showed not a few of the scenes which one expects to see at a commercial port on festal occasions.

M. Halfeld speaks with enthusiasm of the townspeople.* I found them civil and courteous, as indeed is the rule of the Brazil, but the Bahiano did not shine after the Paulista, or the Mineiro. My letter of introduction to the Lieut.-Col. Joaquim Francisco Guerreiro was not followed by any results; on the other hand, the Lieut.-Col. Carlos Mariani, the grandson of a Corsican who had emigrated to the Brazil, "in the days of the Genoese Republic," came at once to see me, led me to his house, and showed me all his curiosities. He had octahedral pieces of magnetic iron (*ferragem*), which is found scattered about the fazendolas (little estates), and on the Vareda do Cural das Egoás, beyond the western containing-ridge. His rock crystals came from an eastern Serrote; whilst the Tauatinga Range and Natividade in the Tocantins Valley supplied red sandstone with attachments of quartz, showing at the junction regular lines of free gold, and diffused traces of copper. He informed me that a wandering German had lately been robbed of some opals, which are supposed to be found near the Villa de São Domingos, en route to Cuyabá in Mato Grosso.

I spent the main of my time wandering about the town, and trying to detect its latent merits. Beginning at the east and walking round by the north, we find that the site is a great Varzea, or river plain, raised 18 to 20 feet only above the low level of the stream. The land immediately behind the town is flooded six feet, and even more; to the north there is a large swamp-bed, which has its own drain to the east. Many of the houses in this direction show a water mark of 3 to 4 feet in height; and some have sunk twenty-four to thirty-six inches into their sopped and sandy foundations. It is probable, however, that this may be accounted for by the deposit of the inundation; the Mississippi, in some places, leaves annually a coat of mud and sand two or three feet thick. On the north-west is a whitewashed cemetery, and beyond it another of clay. In this part also is the Tezoso (little rise) da Conceição, a "Retiro," where the townspeople huddle together when their houses are under water; it is the resisting bluff which prevents the plain being swept

* "The noble and loyal character of the inhabitants of the Villa da Barra, especially the higher classes, evinces, in all their acts, civil and religious, cordiality,

the most gentlemanly politeness, and in social life an extreme delicacy of manners which rivals the most civilised Courts."

away. At the west end we find the origin of all these evils. Here is the tip-over, the "transbordamento," where the waters of the Rio Grande enter, form an Ypoeira, and, with the assistance of the swamp, convert the site into an island.* The bayou-head can hardly be embanked, it is too broad and the soil is too loose and silty to form a levée. Lime being expensive, clay is used in its stead, and the deep holes dug for this material form, under a sun that burns at 6.30 A.M., another fomenter of marsh disease. The only remedy is to remove to a better place, but the question is where to find it.

The town is in the usual long narrow form, with silty and sandy thoroughfares, all bearing names, none boasting pavements. Behind, or north of Water Street, is the Rua do Santissimo; behind it the Rua do Rosario has at the west end a Praça, a huge cross, and a two-windowed ground-floor chapel; still northwards is the Rua do Amparo, a wild suburb, and beyond it the "Retiro." These long lines are connected as usual by Travessas or cross streets. There are a few sobrados and meio-sobrados, fronted by the usual bits of brick-edge trottoir, and proudly displaying glass windows. Most of the houses are small, with large projecting eaves under-boarded; many, even in the highest parts, appear half interred. There are a few shops of dry goods, and a photographic establishment, which sells cartes de visite at the rate of 8\$000 per dozen; a butchery supplies tolerable meat, and a host of Vendas sell spirits and rapadura, onions and garlic.

The nucleus of the settlement is about the Largo da Matriz. The people determined to show their spirit by building to São Francisco a church of the grandest description. Such things begin vigorously in the Brazil. The Provincial Government gave £400, which alms and contributions raised to £2400. Bahia was applied to for a plan and an architect; the person chosen was a German, Herr Heinrich Jahn, who brought with him his family. The first stone was laid on Oct. 4, 1859. The building is, or rather will be, 100 feet long by fifty broad, double towered and with a clerestory. The material is brick

* Since the little deluge of 1792 the town has often been threatened with destruction, especially in 1802, 1812, and 1838. In 1857 the Villa da Barra escaped

better than Januaria; the latter, as well as Urubú, was not so fiercely visited as the former in 1865.

and lime upon a foundation of ashlar. The front has the usual three entrances and five windows, and the graded pediment has introduced a little change into the popular monotony of façade. In the interior party walls set off two sacristies, which seriously diminish the space. At present all is scaffolded with Carnahúba palms, and the works are stopped by lack of funds. The whole affair is out of place and size, and the Villa da Barra looks like an annexe to its Matriz.

On the south-east of the church square is a detached Casa da Camara, with a bell and six windows above, and a grating which shows the jail below. At times the floods have rendered it necessary to save the archives in canoes. The prisoners appeared, like the rest of the people, "jolly," and here they need never sing with the starling, "I can't get out." The military force, paid by the Province, consists of one sergeant and ten men, whose duties seem principally to sound the bugle. The sentinel at the door leans against the wall; he has neither collar nor shoes, his only weapon is a bayonet, and he much reminded me of the items which composed a certain corps on the Gold Coast, now disbanded. The last of the public buildings is the Hospital de São Pedro. The Government assisted with funds a Brotherhood, which subscribed 1\$000 each per mensem, and continued to do so for a short time. The house still remains, but the inmates are at most two, and the good work may be said virtually to have been dropped.

The Villa da Barra dates from 1753—4. Its municipality contains 10,000 to 12,000 souls. There is only one freguezia—São Francisco das Chagas. In 1852—54, the houses in the town numbered 660 and the population 4000; neither had increased in 1867. Its connection with the seaboard is very imperfect. The road to the city of Lençóes (sixty leagues, each of 3000 braças), was a mere "picada" in 1855—a line of river fords, muds, and mountains barely passable, but passable. The best road to Bahia is through the old town of Jacobina (seventy-five leagues), a long leg to the east. It is described to run over a plain with three "jornadas" or stages of twelve to fourteen leagues each, waterless during the dries; the mule troopers, however, accomplish each one in the twenty-four hours; then comes the Serra do Tombador, leading to the town, a stony ladeira or ascent, for which, however, the mules are unshod,

and lastly from Jacobina to Cachoeira City all is comparatively level.

The people of the Villa da Barra breed cattle and a few mules; their chief occupation, however, is the carrying trade,* and, like the West African seaports, they act as brokers between strangers and the people of the interior. We are now on the outskirts of the great salt formations, which, however, does not prevent the condiment being imported from the coast via Joazeiro. The saline matter is deposited by water chiefly in the vicinity of streams, and rock salt (*sal gemma*) has not yet been found. We visited further down several places where salt had been "planted," that is to say, mixed with the soil, with the view of making it spread and, as it were, breed. The "Salineiros" collect and make it between the months of July and October. It is treated like saltpetre, strained in bangués (coffers or hides), evaporated over the fire, and allowed to crystallize. Sometimes it is exposed in "coches" or huge troughs to solar action only, and this simple operation would pay better if done on a grand scale. What it chiefly requires is purification, and the separation of the other salts, magnesia, for instance, which are equally disagreeable and deleterious. Some of it is white and fine like sea salt; often, however, it is bitter and brown (*amargoso e trigueiro*), fit only for beasts. Finally it is packed for exportation in hide-bags called *Surroês* (*Surons*). †

The Villa da Barra do Rio Grande has a high and unmerited reputation. I soon found how it had risen to fame. The Mineiros wish to see Januaria the capital of the new Province. The Bahianos prefer Carunhanha on the Villa da Barra, and the cause of the latter has been ably espoused by the ex-Minister and Senator, João Mauricio Vanderley, the Baron of Cotigipe.

* The following list of my purchases will show the prices then current at the Villa da Barra:—

1 Garafão (4 bottles) of country rum	0\$500
2 lbs. salt	0\$130
10 lbs. beef	1\$000
16 lbs. lard	3\$000
10 lbs. rice	1\$600
1 string (resta) onions	0\$100
½ quarter of farinha	0\$800
Total	7\$130

† The measure varies everywhere; here the *Surroê* is of 24 pratos, say 50 lbs.

This influential Conservative is a "son" of the place, and has a filial regard for its prosperity. My conviction is that the Villa is one of the worst sites that I have yet seen, and that it is fitted only to be a port or outpost for Bom Jardim or Chique-Chique.

CHAPTER XXII.

FROM THE VILLA DA BARRA (DO RIO GRANDE) TO THE VILLA OF PILÃO ARCADE.

SEVENTH TRAVESSIA, 29 LEAGUES.

THE SAND-DUNES.—COMPLICATED APPROACH TO CHIQUE-CHIQUE.—THE SETTLEMENT DESCRIBED.—THE XIQUE-XIQUE CACTUS.—GOOD MUTTON.—HIRE ANIMALS TO VISIT THE DIAMOND DIGGINGS.—THE OLD FREEDMAN.—THE TREES AND BIRDS.—BREEDING FAZENDAS.—THE GROVE OF CARNAHÚBA PALMS.—LAKES.—ASCENT OF HILLS.—THE SERVIÇO OR DIAMOND-DIGGING “DO PINTORSINHO.”—THE VILLAGE OF SANTO IGNACIO.—ORIGIN OF THE DIGGINGS, AND OTHER PECULIARITIES.—RETURN-RIDE TO CHIQUE-CHIQUE.—RESUME NAVIGATION.—THE PORTALS.—THE STORMS.—REACH PILÃO ARCADE.

“Ce beau pays peut se passer de l’univers entier.”—*Voltaire*.

WE did not pass a pleasant night. The air during the early hours was still and sultry (82° F.). Then the cold land-wind set in. At first a long monotonous song made the hours unpleasant; afterwards came the lively splashing of Piranha, the “devil-fish,” and the muffled growl of the stream, which seemed to be mischievously inclined.

Below the Villa da Barra the São Francisco broadens, the containing ridges retreat, and the riverine valley is a dead fiat. The heat greatly increases, although the channel trends between north and north-east, the direction of the Vento Geral. Boats must sometimes remain embayed for days near the low ragged sand-bars, and the crews congratulate themselves on having a dozen clear working hours. Accidents are so common that there is hardly a boatman who hereabouts has not been wrecked at least once. Suddenly, in the clearest atmosphere, the breeze dashes down upon the wide surface, the waves rise, and the canoe or raft is swamped. The greatest care is given to observing the premonitory symptoms, especially the “redemoinhos,” columns of sand sixty to seventy feet high, which career whirling over the plain.

Boats creep along the windward or sheltered bank and make ready for the refuge-place before the "vendaval" or squall bursts.

We could not set off before 9:30 A.M. The wind began early. The first league showed on the right a blind channel, the "Ypo-eira funda," which, during the floods, gives direct communication with Chique-Chique. A little beyond Cajaseira* of the Capitão José Vicente is another bayou also impassable at this season, converging to its southern neighbour. These should be carefully examined. The narrow opening, made practicable to admit craft at all times, would greatly assist navigation to Chique-Chique, and relieve the latter place of its main difficulty, direct approach. The channel, it is said, would be easily managed. We shall presently skirt it when riding inland from Chique-Chique. On the other hand it must be taken into consideration whether such opening will not throw the thalweg to the right and greatly increase the amount of flooding. Fazendas and fazendolas were scattered in all directions over both banks. We landed on the right side to examine a place reported to contain limestone. It proved to be a mere "barreiro." After we had passed sundry cultivated spots,† and Carnahúba groves standing up like huge palings, the furious wind compelled us to anchor at the head of a little sand-bar, the Ilha do Mocambo do Vento. This "Maroon village of the wind," an ill-omened and appropriate name, is considered one of the worst places. The channel bends to the east and the south-east. The bed is unusually broad, and the stream flows in the teeth of the Trade. Upon the Corôa we found diamantine crystals, and a scatter of acary, the armour-plated fish, had been thrown away from the seines. The spiny outer skin had been mummified, and the attitude was still that of the death-throe.

Tuesday, Oct. 8, 1867.—The wind, after a fierce struggle through the night, made a feint of falling. It rose, however, with the sun and filmed over the Corôa with a gauze of sand which reminded me of the Arabian wilds. Even at 1 P.M., when we set out, advance was difficult. The left bank was dotted with small detached hills, and between Areia branca and Hycatú‡ we entered

* Probably from Acaya or Acajá (Spondias venulosa, in Tupy ybanétara), a Burseracea resembling the Imbu or Imbuzeiro.

† Sambahiba, a little village with red milho hanging to dry upon a Varão, or

three-poled gallows. The Arraial do Porto Alegre, near a fine wooded rise of Carnahúba and Caatinga on the left, and so forth.

‡ The "good water."

a land of "lençoës," or shrouds, as they were called by the old Portuguese explorers. Sheets and heaps of the whitest sand, the degradation of Itacolumite, glittered in the sun, like the patches that lie about Diamantina. Here and there it was dotted with black points, dark green tufty shrubs, which at times the mirage converted into tall forests. In parts the substance becomes yellow, and resembles even more the low dunes lining an ocean shore. The underlying rock is probably limestone, and the formation will extend for many leagues down stream, especially on the left. Nothing could be more picturesque than this bit of the Sahára, especially when backed by a gloomy pall in the northern sky—here a sign of wind, not of rain—and when fronted by the steely stream, damascened by the golden glories of the setting sun.

The main channel runs far to the north-west of Chique-Chique, and there was not water enough to float us over the direct line, about two miles long, passing to the south of the Ilhas do Gado* and do Miradouro. We were therefore compelled to skirt the whole western shore of the latter, which in length is at least seven miles, with four miles of extreme breadth. At its north-eastern extremity the navigable channel, a continuation of the blind Ypoeira, doubles back to the south-west in order to reach Chique-Chique. It is at least eight miles long, not including the numerous windings. This is the "Barra da Picada," so called from a small place at its mouth. There is yet another passage, at times practicable, between the main stream and the Ypoeira, the "Barra da Esperança," which passes between the smaller Ilha do Gado and the Miradouro. This portion of the São Francisco is exceedingly complicated, and the network of channels can hardly be understood without a map.

The great artery widens to upwards of a mile, and is marked by snowy sand-heaps, set in the darkest verdure, opposite the mouth of the Barra da Picada. This channel begins with a breadth of 500 feet between terra firmâ and the Miradouro, which, at its north-eastern extremity, fines off to a swampy point, the Ponta da Ilha. It presently narrows to 200 and 150 feet, and where it joins the Ypoeira to the north-east of Chique-Chique it

* This is the lesser "Ilha do Gado," to the west of the great Miradouro Island. The larger "Ilha do Gado" is the space included between the blind Ypoeira and

the main channel: it is south of the Miradouro, and it is insulated only during the floods.

widens out to 700 yards. At first it makes a long "horseshoe-bend" to the west. After that its course is direct. The depth will admit boats at all seasons, and the breadth is hardly sufficient to allow waves to form. Its tranquillity, especially enjoyable after the roughness of the great river, reminded me of those West African lagoons which subtend the shores of the boisterous sea, and which aid so much the loading of slave ships. The low banks on both sides, the dense bush, at times broken by a bare talus, and the little patches of spinach-green fields with their rough fencing, vividly brought to mind the features of Dahoman Whydah.

We passed a few tiled huts on the proper right bank of this quiet channel, and the whitewashed chapel and hamlet of Santa Anna do Miradouro* on the eastern margin of its islet. We then entered the broadening mouth of the Ypoeira—at this season a backwater, and found a safe anchorage where the gusty north-wind can do little damage. At the port were a number of canoes belonging to fishermen and melon vendors. A barca had been stranded, and another was being caulked upon the beach. Above us rose the town, which was not less "jolly" than its neighbours. Drum and song, dance, laughter, and shouts of applause, prolonged till dawn, showed that, despite the absence of festival, the "folia" was not wanting.

The next day opened so badly with the wind-clouds that I determined to rest the crew, and to indulge myself in a short visit to the nearest diamond washings. We began by inspecting Chique-Chique. The "porto" along the eastern bank is formed by a natural pier, a dwarf cliff, at this season some four feet above water. The material is a silicate of white-grey lime, in places granulated with iron stone and puddinged with large and finely disseminated quartz. Containing silica and a considerable proportion of clay,† it will make the best hydraulic cement. This and the Lapa are the principal lime quarries. Chique-Chique annually sends up and down stream, between the Villa da Barra and Joazeiro, 1500 to 2000 alqueires. On the beach were canoes full of the finest water-melons. Horses were being groomed by the usual process of dashing water upon them from a large cala-

* In Mr. Keith Johnston's map "S. Anna de Miradouro" is made a small town upon the eastern bank of the São Francisco.

† Ordinary hydraulic limestone contains

15 per cent. of argile, the good, 16; and in those which make the best cement the proportion rises to 25 and even 30 per cent.

bash. Lads in naturalibus were preparing to bathe, and washer-women and carpenters plied their trades. Spoonbills (*platyrhynchus*) stalked amongst the dug-outs, which had brought for sale an abundance of fish. The birds were not improved by civilization, and their delicate pink plumage had turned grey with mud.

Upon the bank-top we found a large space open to the stream, with a central cross supported by a heap of stones. At the bottom, facing to the west-north-west, is the Chapel of N. S. Bom Jesus do Bomfim.* It is a poor, mean pile of brick and lime upon a stone foundation. The usual preposterous front was four windows, and no belfry-towers. The interior, anciently a burial ground, displays a blue and gold high altar, with frescoed ceiling, and two side-chapels where swallows had nested. The walls show a single miracle paper, dated 1804, and the congregation consisted of three old women, two in uniform black, the third girt with the white cord of St. Francis. The town extends on both sides and behind the church, thus forming a truncated cross. The tenements near the creek show a water-mark two feet high. They can easily be raised upon platforms. The floods do not extend to the higher parts, and the people boast with justice that their "assento," or site, is the best upon the river. The heavier rains begin to fall in October, and continue with breaks till May. The inundation lasts five months, from November to April. Already there is a freshet of six palms, and the indirectness of the water-course here makes a rise of one foot to four or five in the true São Francisco.

There is some excitement in visiting and describing these places, now the most wretched of "rancheries," but destined to become the centres of mighty States. Chique-Chique runs nearly north and south; as usual the long straight streets are parallel with the creek, and here they are almost sufficiently broad. Pavement is as yet unknown, but scatters of ironstone upon the hard ground render dust and mud equally impossible. A triangular "square," south-east of the church, surrounds a detached Camara-cum-jail, and the iron-bars of the latter are fixed into wooden frames. Farther to the east there is a neat, whitewashed cemetery, with incipient catacombs. One Casa Nobre, with a balcony of quaintly painted wooden railings, and a few half-sobrados, have been built. The rest are ground-floor tenements, each with its

* N^a S^a do Bomfim (M. Halfeld).

large compound and little "hanging-garden" of geranium, basil, and lavender (alfazema),* of onions and choice vegetables; the latter is mostly a trough or a bit of canoe, raised on poles beyond the reach of ants and pigs. The tenements may number 180, but many of them are opened only on fête-days, when 1500 souls find lodgings.

The country behind the town is a field of various Cactaceæ, which form contrasts. The dwarf of the family is the Quipá, with its large crimson fig, so much enjoyed by the parrot (*Psittacus caetorum*) that the beak is stained red. Another pigmy is a bulb nearly a foot in diameter (*Melocactus*, or *Echinocactus*), ribbed like a melon, and guarded at the angles by terrible thorns; upon the top is an inflorescence, like a Turkish fez, and the people know it as the friar's head (*cabeça de frade*). Horses learn to like the soft spongy substance, which the plant takes so much care to preserve; it keeps them in condition, and they fetch a higher price than those who refuse it. The people declare that riding animals and black cattle learn to open the armed exterior by striking it with the hoof. There is the common flat *Opuntia* and the "Xique-Xique," † which is planted in hedges, and gives its name to the settlement. According to M. Halfeld, this is a kind of cactus which, roasted and peeled, has the taste of a batata or sweet potato. The almost general word is differently used in the several places. Here it is applied especially to a tall "Organ-Cactus," which is almost a tree; the angles vary with its years, in youth it is many-sided, and it ends life almost cylindrical. The shape also varies; here it runs serpent-like along the ground, there it stands stiffly upright. One kind has a fleshy white flower resembling wax-work; another (*C. mamillaris*) is patched with white fleece, as though it had robbed a sheep, and almost conceals its dark-red blossom. We shall meet with other forms further down the São Francisco.

I was surprised to see about a place so rich in Cactus, goats so small and stunted, whilst here were the finest sheep of the Brazil, and mutton is justly preferred to beef. Hardly any pasture, except thorns, was upon the ground, yet a perfect assimilation of

* The women are fond of these perfumed herbs, and ornament their hair with the flowers.

† Gardner writes Shuke-Shuke, as the

word is pronounced. I have preferred the form "Chique-Chique" for the settlement, "Xique-Xique" for the plant; but the distinction is not recognised by the people.

food, as in the Somali country and on the Western Prairies of North America, kept the animals in the highest condition. The lambs wore a thick fleece, which disappears from the adult; some are white, others are brown, all are thin-tailed, and not a few are bearded. No trouble is taken to breed them; the owners, however, have sense to pen at night the flocks, numbering thirty to forty.* The usual price is 2\$000, or 3\$000 when the animal is very fat. Horses, small but hardy, and with signs of blood, cost 60\$000; good riding mules, which make Jacobina (sixty short leagues,) in four days, rise to 80\$000 or 100\$000. The cattle is neat and sleek, apparently untroubled with ticks or "bernes." Besides stock-raising the country supplies, every year, 1000 to 2000 alqueires of salt to the Upper São Francisco; manioc planted after and taken up before the rains, gives good farinha; maize and excellent tobacco are brought from the Assuruá Range. The people boast that their land is one of the richest, if not the richest near the river; it produces gold and diamonds, fish and salt, and the wax-palm grows in vast forests.

After some trouble about conveyance I hired for 3\$000 each, a horse and a mule, with the owner as guide. Cyriaco Ferreira was a tall, thin, old black, with a preposterous masticatory apparatus, and a scanty, scowling brow. He consulted me shamelessly in the presence of his wife concerning a certain "Gallica;" here even white men talk about it before their families as if it were a "cold in the head." The frequent mutilations which now begin to meet the eye doubtless proceed from the use, or rather the abuse of mercurials, to which are added the ignorance and the recklessness of the patient, who, even when the facial bones are attacked, will drink spirits and take snuff.

Our negro had been a good man and true as a slave; a false idea of charity had emancipated him, and with freedom appeared all the evils of his race. Fawning as a spaniel to those who knew his origin, he was surly as a mastiff to us; recalcitrant as a mule, he would loiter when we wished to advance; he "trod upon our toes" at all opportunities, and with the real servile style he proceeded to give his orders. Travellers who have even a constitutional aversion to a "row," are forced into it at times. When it is thrust upon one the only way is "to go into it," tooth and

* The Brazilian variety, called on the Amazons "sheep of five quarters," was not seen here.

nail. This was done ; a few rough words, and clearing decks for action, soon brought back the old slave, but at times it yielded to a passionate outburst of the new freedman.

Riding down the Rua das Flores, we struck out into the open country, towards a long blue rock with a table-top summit, south-east of the settlement. This Serra do Pintor will be conspicuous for several days down stream ; it appears a frustum of a cone, a second distance rising above a long sloping ridge. Cotton of smaller than usual size grew in the suburbs ; and the district beyond it, the Praia Grande, was clay strewed with iron pyrites, which unless neutralized by underlying lime, must produce injurious sulphuric acid. Our path lay along the left bank of the great Ypoeira Funda, which bulging out forms a lake round a wooded central islet. Higher up the bed, it sends to the south-east a canal or navigable arm, which we shall presently sight. The Fazenda da Prainha was built upon the most unfertile soil, which produced only dwarf thorns ; attached, however, to the ranch was a large stockade of palm-trunks, and wandering about the fold were the fattest of sheep. Few people were on the road, all were armed, and most of them were talking about a late murder in three acts—a drinking bout, a stab, and a shot. An old proprietor rode by with two immensely long pistols projecting far above his holsters, and the attendant slave followed with a gun slung over his shoulders. A typical sight was a woman on foot and a man on horseback carrying the baby. The tropeiros mostly drove horses ; here, however, we are getting into the country of the pack-bullock. These men boast that they travel all day, not only till noon, like the muleteers of the Southern Provinces, and that thus they cover an umber of leagues. But almost all were mounted upon pads supported by two broacas,* which carried their salt and grain ; moreover the leagues are short, and it is easy to walk over two in an hour and a half.

My companion could not travel without wanting to drink water, which greatly amused the Brazilians. For this purpose we halted at the Fazenda de Suassíca, one of the many breeding establishments—tiled huts, ranches, and large folds—scattered at short distances. Two youths, the sons of a neighbouring proprietor, who with half a dozen whitey-brown lookers on were

* These square saddle-bags, with the hair outside, are now generally known as “Surroões de Couro.”

playing dominoes in a clay room hung with hammocks, came to the door and asked us to dismount. When coffee was finished came the usual query, "Pois, que trouxerão de negocio?" The inevitable reply puzzled every brain; they must have thought that they had entertained unawares "díabos"—government men on no angelic errand—but they preserved their courtesy to the last, and held our stirrups when we remounted.

Beyond Suassíca the land became a deep sand of ruddy colour, and presently passed, as the house-walls showed, into a blood-red clay; it was scattered with lime, and it is doubtless exceedingly fertile. The Favelleiro (arboreous *Jatropha*,) stunted near Chique-Chique, is here a tall and goodly tree. The thorny *Mimosas* and *Acacias* are hung with golden and silver blossoms, and the charming *Imbuzeiro* perfumes the air. Here the growth is low, drooping its flower-laden branches almost to the ground, and forming a shady bower, like the wild figs on the banks of the Lower Congo River. Many trees have the smooth barks and straight spindles of the *Myrtaceæ*, especially the *Páo branco*, which supplies the hardest wood; they contrast curiously with the gnarled *Imburana** (*Bursera leptophlocos*, Mart.), whose bole is hung with burnished yellow rags, the peeling off of the cuticle that exposes the green-blue cutis beneath. This tree yields a greenish-yellow gum or balsam, resembling turpentine, and the scent is a favourite with the wild bee, as is proved by the many places cut away by the hatchet to reach the combs.

These strips of forest support, chiefly on the outskirts, a variety of birds. Plovers course across the opens, large green paroquets rise screaming from the boughs, and *Aráras* of the usual two species, the red and the black, appear to us for the first time in a wild state. The "Encontro branco," or large blue and white winged pigeon of *Diamantina*, here called "Pomba Verdadeira," is a visitant from the hills; it apparently prefers *Itacolumite* formations. The "Alma de Gato," a large, light-brown *Coprophagus* (?), seeks lizards and such small cheer. On the topmost twigs, especially of the shrubs, balances itself a snow-white bird with black wing-feathers, probably a *Muscicapa*; we see it now for the first time. High in air wheels the *Urubú*

* St. Hil. (I. ii. 105) explains *Imburana* by the Guarani "ibiranae," meaning barrel, scabbe, turriv. But the termination

"-rana" in the *Lingua Geral*, equivalent to the Portuguese "bravo" or "bravio," means poisonous.

Caçador, or hunting vulture, with crimson head and silver-lined wings.

We rode slowly through this interesting tract of wood, and presently we came upon a bit of African scenery; hedges of Cactus fencing a large field, whose "black jacks" were about three years old. This is the Fazenda do Saco dos Bois, with the little chapel of N^a S^a do Amparo, and a scatter of huts, inhabited by the proprietors in partnership. We were civilly received by a man who was lying stratus in umbrâ, under a thickly leaved and now blossoming Juá.* The site is high ground, never inundated, although within a few yards of the "Canal," the south-eastern arm of the Ypoeira, which we passed near the Fazenda da Prainha. The back water was then flowing up it towards the Assuruá lakelet, which it floods during the rains, and drains during the dries; it was covered with water-fowl, but the fluid was so muddy and impure that our beasts refused to touch it. The civil agriculturist, peasant I cannot call him, advised us to lose no time; the hills, formerly blue walls, now looked near, and we could distinguish slips of white rock and patches of sun-burnt grass. But distances are deceptive in this unsmoked air; the heat was unusual, and heavy storm-clouds were surging up from the west,—the especially rainy quarter.† The hills must attract every mist within their range, and wet weather comes from every direction. All were praying for the "Chuvás de Mangába" (Hancornia)‡ or de Puça (Mouriria Pusá, Gard.),§ the showers which accompany the fruiting of these trees.

Leaving the Saco at 4 P.M., we fell at once into deep sand, with a labyrinth of paths running through the stunted blades of grass. A few yards led to the northern edge of a great Carnahúbal, some four leagues long from north-east to south-west, and large enough to supply the whole river with candles. Every shape and age and size of the palm is here, from the chubby infant a foot high, to the tall thin ancient, whom a breath may fell. The panache gives tremendous leverage, and in parts the trunks lay prostrated by the north-eastern hurricanes, like

* This is a local name of the thorny Joazeiro or Zizyphus.

† According to others, the north-east is the rainy quarter by excellence.

‡ St. Hil. (II. ii. 215) mentions two

species of Mangába, the *M. speciosa* (Gomes), and the *M. rubescens* (Nées and Mart.)

§ This shrub produces a small dark plum.

the long thin alleys which canister cuts through a column of men. In other places water lingered upon the black muddy ground, and the spikey bases of the trees, catching the floating weeds, showed the amount of rise; this has a curious effect when the palms are numerous. Much of the Carnahúbal during the great floods of the year must be crossed in canoes.

After two hours' ride the Carnahúba began to be mixed up with strangers; the Bahú tree, the Mureçi (*Byrsonima verbascifolia*),* the Puça, and the Mangába. Presently it ceased altogether, and we saw on the right the "Lagóa do Pintor," a green-margined tank, about 200 yards across, with a central islet of lush aquatic plants. During the floods, it is connected with the south-eastern branch of the Ypoeira, and at times it is almost dry. Amongst the trees beyond the water line are a few huts, whose inhabitants seem little aware of the wealth before them. This pond receives from the mountain slope a number of small diamantine streams, and the gems must settle in it. Artificial draining, however, is required, and such operations are far beyond the reach of the present occupants of the land.

Presently we arrived at the hill-foot, cumbered with large and small blocks of stone, which have rolled from the upper heights. This is the western counter-slope of the Serra do Assuruá, a meridional range that prolongs the diamantine formation of the Bahian Chapada. The "ladeira" or ascent was a succession of steps, loose stones and slabs, between which the sandy soil appeared. Reaching the summit of the hog's back, we turned to prospect the "taboleiro" over which we had passed; the large "Salinas," that supply salt to the river, lay upon it in glistening patches, and the Lagóa de Assuruá, about one league in length, was surrounded by snowy heaps of sand, like the "Shrouds" of the São Francisco. This water drains the Serra do Pintor, and its village "Itaparica" takes from it every year £300 worth of fish, here not an inconsiderable sum. The people speak of immense shoals which await exploitation.

Descending the counterslope of the ridge, we saw below us a small Serviço, with a single house and a few thatched huts on both sides of a narrow stony gully. This Riacho do Pintorsinho flows, like the neighbouring waters, from north-east

* Also written "Mursi;" the bark yields a black dye.

to south-west, and feeds the Lagôa do Pintor. We had no letters of introduction, but we rode up to the doors and introduced ourselves to the owner, Capitão José Florentino de Carvalho, who, after the labours of the day, was reposing under the shadow of his own fig-tree. The fig, by the bye, was a wild Brazilian, which lately took only eight days to cover itself with dense verdure; such is the exceptional fertility of these Itacolumite soils in the rare places where they are fertile. The Capitão and his amiable wife have been diamond washing in this ravine since 1864. He gave us some excellently cooked Surubim, with the usual trimmings of "piraõ" and pepper sauce; the Dona sent a cup of aromatic coffee, the hammocks were slung in a room under the fig-tree, and we should have slept like tops but for the heavy rain about midnight, and the tremendous snorting of Sr. Cyriaco Ferreira. I cannot call it snoring, the sound was that of ripping up the strongest new calico. When he did not snort he coughed, and—the place was somewhat close—as the leopard cannot change his spots, so the negro skin, even in a freed man, remains negro. Contuberation with the Hamite does not prepossess one in his favour.

The next morning was warm and pleasant, but it spat, and it seemed to promise rain for the afternoon. Our ungracious guide was salt or sugar, so we resolved to visit Santo Ignacio alone. The cross-path lay over a wonderfully rugged succession of hills, forming prism-shaped ridges, whose crystal waters, delightfully clean and pure, discharged into the Assuruá Lake, and where Itacolumite showed in all its grotesqueness. There were shapes of strange beasts, colossal heads and masques; arches, tunnels, and funnels, worked and turned by wind and rain; huge portals, towers, and cyclopean walls, to leeward smooth and solid, on the weather side seamed into courses of masonry, that showed an imposing regularity. The granular quartz was not so finely laminated as the Cerro formation; some of it was hard, white, and polished like blocks of marble, and at first sight it might have been easily mistaken for limestone, which, as the river bed shows, here and at Diamantina of Minas, underlies the sandstone. It was also more generally stained with oxide of iron, and it had large veinings of quartz, which sometimes formed external layers. Crystallized quartz and ferruginous matter, externally vulcanized, lay about in scatters.

The characteristic feature, also remarkable in the Bahian Chapada to the east, is a bouldery, not pebbly conglomerate, which resembles that of the Scottish Old Red. The huge blocks, many of them weighing several tons, contained proportionate pebbles, some rolled, others angular, here entire and there split, like the halves of almond kernels. The hard paste of sandstone, with nestings of many-coloured porphyry, will be cut into slabs of remarkable beauty.

We crossed the Riacho Largo, a narrow gully heading in a high bluff; its delicious water, the prerogative of the Itacolumite lands, feeds a tiny patch of green grass. Beyond it were three places where the rock wastes to a dazzlingly white sand, and this, in the lower levels where thorns grow, passes into soil, brown with a slight admixture of humus. Then we reached the highest divide; a broad sheet of sandstone shows hollows and holes like the hoof-prints of horses. The vegetation was that of the Cerro, the dwarf Mimosa, and the Ostrich Shank (*Vellozia*) a few inches high, whereas in Minas Geraes we counted it by feet. On the right the eye plunged into the sandy plains which bore signs of floods, and where other salinas glittered; to the left was an old diamond-washing, from which the people had taken the sand arrested by the big boulders. In front and below us lay the little village of Santo Ignacio, upon the left bank of a *Córrego*, whose narrow valley was bounded on the further side by a wall of jagged stone, disposed in courses, piles, and peaks. The yellow-green vegetation told the poverty of the soil.

We entered on foot the little mining village, much to the wonderment of its denizens. It had a *Rua Formosa*, a widening called a square, a miserable chapel, by courtesy termed a church, and men in "Panama" hats, black coats, and white overalls. Every Monday there is a fair, frequented by people from far and wide, and some 150*l.* or 200*l.* may change hands. The prices are high: what costs on the coast 0\$100 here commands 1\$000. We found the shop of a Mineiro from Formiga, who appeared exceptionally civilised amongst the "atrasado," arriéré, race of the Province which still boasts of being the Ecclesiastical Capital of the Empire. The little booth dealt in notions and provisions, red japanned tins of English gunpowder, pots, pans, and bowls; onions, garlic, sardines in cases, and rum in demijohns. The

wife being unwell, we could not breakfast, but we drank coffee and ate biscuits under the eyes of brown-faced men, whose principal office in life seemed to be expectoration. This habit is general, as in the United States: perhaps the climate of the New World has tended to preserve it from abolition. Brazilians have told me that it preserves them from obesity.

As far back as 1803, gold was known to exist in the Arassuá Range, and it was worked in 1836. Diamond washing began in 1840, at Santo Ignacio, which was then transferred from the municipality of Urubú to that of Chique-Chique, and the first digging, near the Pedra do Bode, a little down the Córrego, has not been exhausted. In 1841, the Chapada do Coral, some twenty leagues to the south, was found to contain "Cascalho," from which pieces of gold weighing four pounds were taken. In 1842-3, Mucujé, in the Comarca of the Rio das Contas,* became Santa Isabel do Paraguassú, the chef-lieu of its own arrondissement. Presently diamantine deposits were found at Lençoês, so called from the sheet-rocks in the little stream of the same name, the western head-waters of the great Paraguassú River. The place was then a country hamlet, in the Municipality of the Rio das Contas. The discovery was claimed by M. Fertin, a Frenchman, afterwards established at Bahia. It is reported, however, that before 1844 a party of slaves had collected in twenty days some 700 carats, which they offered for sale. These "garimpeiros" were put in prison, but they refused to show the diggings; they were then let loose, watched, and caught working at midnight. In 1845, Lençoês which had been in the municipality of the Rio das Contas, was made independent. Presently a rush of 20,000 souls took place there, and the city rose to importance.† M. Reybaud, Consul de France, Bahia, calculated from the date of discovery (August 1, 1845), a produce of 1450 carats per diem, and a total of 400,000 carats = 18,300,000 francs.

On return, we walked up the Córrego to visit our kind host's "lavra." The lower part of the bed belongs to another proprietor, who, having water handy, can wash all the year round.

* Generally written Rio de Contas, which is, I believe, a corruption.

† It also became the chef-lieu of the Repartição, or Diamantine Department. The papers (bilbetes) issued to the "fais-

cadores" were charged annually, at first 0\$020 per square braça, now 2\$000. They give permission to establish the "garimpo."

Here we found the rock-crack forming the rill converted into a "canôa," or "batador;" the "Cascalho" is thrown in, and the diamonds are arrested by cross-pieces. Following the left bank, we came to a pit some twenty feet deep, where the owner, seated in an arm-chair, with book and snuff-box, was superintending the hands, who, should he happen to go away, lie down to sleep, if at least they find nothing to thieve. Two men, armed with *alavanca* (crow-bar) and hoe, were loosening a bit of boulder, and were scraping up the *desmonte*, or inundation sand, which was carried up the pit side by a black girl, a youth, and a boy. The *Cascalho* must wait to be washed in the rains, and here great inundations or scanty showers are prayed for. The host complained that the increased rate of wages prevented all profit, nor did I wonder: deep works on so small a scale cannot pay. The formation (*formação*) is here called *Pé de Batêa*, small dark stones, like iron filings, which settle at the bottom of the pan; there are also the *fava*, the *ferragem*, and fragments of light or dark-green clay, unprettily termed "*Bosta de Barâta*." The *Capitão* showed us in a *Pequá*,* one little yellow stone. The gems are mostly small, the largest yielded by this pit was the half-vintem, one grain, or a quarter-carat. The *Riacho do Pintorsinho* has produced a stone of two vintens, and a neighbouring *Córrego* four vintens. A diamond of half an *oitava* (eight carats) had been washed in former years, and the result was a "difficulty," ending in a murder, and in the disappearance of the prize.

We bade adieu to our hospitable host, the *Capitão* and the *Dona*, and returned to *Chique-Chique* with all possible speed. This short excursion had proved that "*Cactus-town*" has around it lands of immense fertility, salubrious mountains, which as yet have only been scratched and played with for diamonds and gold, and, briefly, all the conditions requisite for a capital. It is connected to the east with the coast *viâ* *Jacobina*, *Lençoões*, and *Caiteté*,† and to the west with the *Piauhy* and the *Goyaz* Provinces.

* The Tupy word *Pequá*, meaning wood generally, is applied to a bamboo-tube a few inches long, from which the stones can be turned out without letting them fall. *Castelnau* (ii. 343) describes *Picoi*, "*Sorte d'étui fait d'une écorce très flexible.*" The miners have sundry superstitions about these articles.

† Alias *Villa do Príncipe*. The word, written in a variety of ways, *e.g.* *Caiteté* and *Caiteté*, is a corruption of *Coa-été*, virgin forest, and is thus synonymous with *Caethé*. In the days of *Spix* and *Martius* its neighbourhood was famed for cotton.

We may easily predict that, despite the satirist, some one will presently be proud to—

Ser barão de Xiquexique.

Oct. 11.—We easily ran down the Barra da Picada, which is, however, more tortuous than it appears in M. Halfeld's plan, and after three hours we made the main artery. The left continued to show the containing mounds, here dark with vegetation, there patches of white or yellow sand, and this feature will extend some eleven leagues down-stream. The land is everywhere arid, and the principal features are the "Carrascal" and the Salina. In the afternoon we passed the Arraial da Boa Vista das Esteiras (of the mats), a little chapel-village with some fifty huts on the right bank; and we presently anchored at a Corôa, known as the Ilha da Manga, or da Porta. Here a rich diamantine "formação" abounded, and the gull, everywhere impatient of man's presence, screamed through the night, justifying Agostinho's epithet "bicho aburrido," * disgusting vermin.

Oct. 12.—We are about to enter a Porteira or funnel, where the stream, after spreading out to five times that breadth, is compressed to 1500 feet. On both sides high lumpy ridges, some bare, others rising umbre-coloured from the green lines of water-shrubbery, either fall into the stream, or form bluffs that face it for some distance. Running down the sand-bar shore we passed with infinite trouble through the first gate. On the right bank is the little village "Tapéra da Cima," with its broad ypoeira. Opposite rises the Pedra da Manga, projecting southwards into the stream a ridge like that of Santo Antonio, prism-shaped, about 100 feet high, by half that breadth, red above and dark below. Here commences the great gisement of magnetic iron, the Itaberite or Jacutinga which we have already visited at Sabará and Gongo Soco; no examination for gold has yet, I believe, been made. The strike of the metal is north with westing and south with easting, † and it is prolonged on both sides of the São Francisco.

* The word is originally Aborrecido, abhorred, hateful, disgusting, the strongest expression of dislike; it is contracted to aborrído, which is pronounced by the Caipira aburrido, which, if it signifies aught, means donkeyfied.

† In M. Halfeld's plan, the strike is laid down nearly due north and south. I am probably in error: these formations so "disorient" the needle, that peculiar precautions are necessary.

Below this first portal the river, flowing to the north-east, widens out considerably. The Vento Geral, which had been fitful and fractious at dawn, presently brought a cold wind and violent rain, which made us shiver, though the mercury showed 73° (F.), about the temperature of a comfortable East Indian Club. We made fast to a Corôa till the storm had spent its rage, and then we attacked the second gate. Here again the bluffs on both sides correspond, and both have similar ports, sandy beaches a little down-stream. To the north were the few huts of the Tapéra de baixo, backed by a hill-knob; and on the south, "As Pedras (do Ernesto)." We landed at the latter, a short row of hovels, and a single block with whitewashed walls. Here the rock chine, prolonging high ground behind, trends to the north-west; it is broken into blocks, and shows cleavage as well as stratification. Pieces picked up by chance drew the magnetic needle round the compass card, and the substance appeared harder and closer than what we had seen in Minas Geraes.

Again the channel bulged out, as we emerged from the second portal, which ends in a cliff of yellow sandy water on the left bank. And again the grey nimbus in the purple northern sky sent forth howling blasts, and a slanting rain which compelled us to anchor thrice. The pilot determined at last that this *is* the wet season, and somewhat regretted that he had left home. We presently made fast to a sand-bar in the stream, and prepared to night. Far to the west was a blue crest fading in the distance. We are now nearly on a parallel with Paranaguá of Piauhý, on the southern head-water of the great northern Paranahyba River,* and this may be an offset from the dividing ridge between the two valleys, called in maps Serra dos dois Irmãos, and here the Serra do Piauhý.

Oct. 13.—As work was not to be done by day, we determined to try the night in places of minor interest; the moon also was nearly full, and robbed the snag of a few terrors. Again, the yellow muddy colour of the margin told us that the São Francisco had fallen to the extent of six inches, and we

* St. Hil. (III. ii. 250) explains Parana-hyba as a corruption of Pararayba, "rivière allant se jeter dans une petite mer." Sr. J. de Alencar supplies the true derivation: "Para," the sea, "nhanha," to run, and "hyba," an arm, "running arm of the

sea," that is, tidal river. Three words in the Lingua Geral are easily confounded,—hyba (híba), an arm; ayba (aíba), bud; and hybá, íbá, ybá or iná, a tree, especially a fruit tree, and often used as a desinence.

jealously watched every symptom, wanting as much flood as possible, with an eye to the Rapids. At 3.10 A.M. there was a mist, or rather a thin rain, the first "Garôa"-fog since quitting the charming Rio das Velhas, and under its influence the river showed a sea horizon. At 7 A.M. we saw over the dark-green right bank the Serrotinho (M. Halfeld's Serrote do Rio Verde), with its two heads of the lightest leek-colour. A little to the south of it enters the Lower Rio Verde, whose mouth is about 230 feet broad, and whose line admits of scanty navigation. Like its namesake, the water is distinctly salt. On the north-east was the Serra do Boqueirão, a long vanishing line of buttresses, forming three distinct bluffs. Upon the left bank rose a little hill upon whose crupper sits the Villa of Pilão Arcadeo, the end of this highly interesting Travessia.*

* In Mr. Keith Johnston's map, the dotted line of the Rio Verde is placed at some distance below "Pilau," whence it

enters the São Francisco, about two miles above Pilão Arcadeo.

CHAPTER XXIII.

FROM THE EX-VILLA DO PILÃO ARCADO TO THE VILLA DE SENTO SÉ.

EIGHTH TRAVESSIA, 31½ LEAGUES.

PILAO ARCADO DESCRIBED.—RUINED BY PRIVATE WARS.—GREAT IRON FORMATIONS.—STORMS AGAIN.—BAD APPROACH TO THE VILLA DO REMANSO.—THE TOWN DESCRIBED.—RESUME WORK.—THE GREAT EASTERLY BEND OF THE RIO DE SÃO FRANCISCO.—THE TUCUM PALM.—LIMESTONE.—AN IRON HILL, THE SERROTE DO TOMBADOR.—SHELLS.—THE MINHOCÃO MONSTER WORM.—THE WILLOWS.—REACH THE TOWN OF SENTO SÉ.

“The Missouri and the Mississippi Rivers, with their hundred tributaries, give to the great Central Basin of our Continent its character and destiny.”

Mr. Everett, July 4, 1861.

PILÃO ARCADO is still a mere hamlet ; the original settlers here found a crooked wooden mortar, hence the corrupted name.* A natural pier of iron-revetted clay projects to the north-east, and throws the stream to the right bank, where it forms a sack ; the channel then sweeps to the north-west. The beach shows conglomerate, based upon soft green shale, which is traversed by quartz veins. Three nameless or unnamed streets, running parallel with the water, contains about 200 houses, including a “ casa nobre ” with wooden shutters. The Church of Santo Antonio is a mere “ tapéra ” of bare wattle. The rising ground behind the settlement shows brown soil, growing tolerable cotton, and cactus in quantities ; higher up it is scattered with quartz, white and rusty, and with fragments of various-coloured Itacolumites. Here M. Halfeld places the beginning of the gneiss,

* Properly “ Pilão arqueado.” The terms do Pilão, or dos Piloês, are often added to the names of streams, mountains, and new settlements in the back-woods. Either a coarse wooden mortar used by the

aborigines was found upon the ground, or the neighbourhood had peaks, needles, or cheese-wrings, which the new comers compared with pestles and mortars.

or "gneiss-granite," which will presently pass into true granite.

In former days Pilão Arcadeo washed gold from its hills, made sugar, which was dark but tolerably heavy and well flavoured, and, being the centre of the Salinas, supplied salt to the settlements up and down-stream.* It became a villa, the chief place of a termo, and the residence of a Juge de droit; presently it lost the privilege—desvillou-se—which was transferred to "Remanso," distant sixteen leagues. The principal cause of its decadence was a private war which lasted for some generations, and which remind us of the days of the Percies of Northumberland. Such things were in former times common all over the Brazil as they had been throughout Europe, and traces of the Montague and Capulet system are still to be found in many towns of the interior. Here the rival houses were those of the Guerreiro and the Militão families, names that suited well with their fierceness. The head of the former, in late years, was Bernardo José Guerreiro; whilst the latter were "Captained" by the Commendador, Militão Placido de França Antunes. This distinguished "valentão" † for nine or ten years defied the power of the Imperial Government, here perhaps a unique feat, and he appears to have been like the dreaded "Defterdar" of Egypt, a man of peculiar personal "grit." At the Villa da Barra I saw one of his victims who had lost both hands, and I heard of another whom for a greater offence he had caponized. He died in 1865, ‡ aged sixty-two, and, as was said of a certain St. Paul of Scotland, that Militão merited the epitaph, "Here lies he who never feared the face of man." Since the death of this energetic person, who will long be remembered as the "Brigador Militão"—Militão the Fighter—Pilão Arcadeo and the neighbourhood have known quiet days. It showed as a novelty sails applied to a large ferry boat.

Resuming our work, we found the river trending generally to the north-east, but often breaking to the west, whilst a multitude of islands and sand-bars rendered the course very devious. The channel, in places two miles broad, contained much more dry

* St. Hil. (III. i. 293) mentions the Sal do Pilão Arcadeo, corrupted to Piloês Arcados, from the Province of "Fernambom," now Bahia.

† I need hardly warn the reader that we must not say, as in the French translation

of Koster's Travels, "le valentoens s'agenouilla."

‡ M. Halfeld (Relat. pp. 105—111) speaks of this brave as one who had departed life.

land than water; the branches were often bigger than the Rio das Velhas, and in parts, especially on the left bank, a narrow natural canal, the "Paranamirim" of the Amazons River, had been laid off by long, thin tracts of insulated ground. A little above the Upper Remanso (Remanso do Imbuseiro), the stream winds suddenly from north-east to east, with southing. The line now becomes populous, and on the left bank the fields are fenced in. The waterside abounds in a lush growth of Capim Cabelludo or hairy grass, and above it is a wooded wave of ground topped by a blue-green cone. On the other bank is the Serra do Boqueirão, the northern extremity of the Serra de Assaruá. The blocks, separated by low ground, where the drainage passes, were well defined by the cloud-shadows, and faced the river like cliffs fronting the ocean. Near the summit are long white lines of perpendicular wall, regular as if fortifications had been thrown up by the Titans; below them the reddish-brown ramp, apparently clothed with dwarf bush, slopes at the usual angle. The material is Itacolumite, based, according to M. Halfeld, on granite or gneiss (schistose granite).

At the Boqueirão Grande, or Great Gap, between the bluffs, the river again bends to the north-east, and a little below, off the Fazenda da Praia, there is a bad rock in mid-stream. Presently we passed on the left Carauá,* the large white house and tiled out-houses of the old "Brigador Militão." A "bull's eye" glared fiercely at us from the east, and an African rain-sun had warned us to be prudent. We made fast to the north of a Corôa, called Ilha do Bento Pires, from some huts on the left bank; and here we found a large barca moored in expectation of the "temporal." This squall did not come on till dark; en revanche it lasted through the night.

October 14.—We proceeded cautiously down the channel, which is here shallow and bristling with crags. The valley is watered on the east by the Serra do Boqueirãozinho, a prolongation of the Boqueirão, and on the summit there is a "taboleiro alto," with fine fertile lands. At 11 A.M. we landed near the Serrote do Velho,

* M. Halfeld writes this word Carná. In Tupy, however, it is Carauá and Carauáta; hence corrupted to Caroa, Caroata, Caragoata, Gravatá (in the Bay of Rio de Janeiro), and (Bromelia) to Karatas by the botanist. In a future volume I shall have

something to say about this most important genus, whose edible fruit gives spirits and vinegar, and whose fibre, valued for hammocks and nets, is current as coin in parts of the Brazil.

the most southerly of three trunion-shaped buttresses, which we had seen from early dawn looking blue and small. The narrow ledge supported a few pauper huts and bore poor bush upon a red clay, too ferruginous to be fertile without lime. Crossing a foul backwater behind the settlement we ascended the hill-slope; it is scattered over with red Itacolumite, cut and cloven by quartz veins, and with magnetic iron, the hardest possible Jacutinga, black and amorphous. As fuel here abounds, and transport as well as water-power are at hand, it may some day prove valuable.

From the hill top we had a good view of the river, which here narrows, and the gut is rendered dangerous by snags, shoals, and a large central rock. Here again M. Halfeld would control the stream by fascines—a hopeless task. We crossed to the left bank a stony floor remarkably rich in shells (No. 3), which are now common on the river, and which will extend to the Great Rapids; those lying upon the sand-banks were empty, and the animal seems to prefer shallow water near the edges. The storm had now worked round to the south, and the scene looked “ugly” as the mouth of the Gaboon River before a tornado. The sky was hung with purple black, white-grey cottony mists lay upon the earth, and the water gleamed with a sickly yellow. Two men were placed at the helm, and presently the fierce “rebojos”* were down upon us, driving on the “Eliza” with furious speed, and tearing to pieces the surface of the stream. We were compelled to paddle across—always a risky process, as “broaching-to” swamps the raft; tufts of shrub emerging from the water showed where a Corôa had lately been. A bow-shaped ripple to the right hand denoted the bank upon which we grounded; all sprang into the water till the “Eliza,” vigorously pushed and shoved, sloped over to the safe side. At the bottom of the reach which runs from south to north, we had seen “Remanso;” the site is a wave of ground gradually sinking to the deep still water † which gave the place a name; from afar the appearance is striking, but a nearer prospect shows little to admire.

A single barca was being built upon the clay bank, where

* The Rebojo is a gale like the Pampero further south; in the plural it is synonymous with refegas, raffales, gusts.

† At the time when I passed it the “remanso” in front of the town had become a strong stream.

several craft lay decaying. The Villa do Remanso, which till eight years ago was an Arraial or village, extends along stream from north to south. The houses straggle down towards the water, and the suburbs wander over the higher land. It is fronted by a large flat island, and below it the channel is narrowed by sand-bars and shoals. To the west, a lumpy blue rise projects from the dividing ridge between the valleys of the São Francisco and the Paranahyba,* while down-stream are the Morro do Marco and the picturesque Serra do Sobrado, whose crooked cones, quoins, and plateaux form an outline like a crested sea rushing to the north-west.

The houses of the new Villa may number 300, and many of them show a water-mark two feet high. The rains had deposited big puddles in every street, and the damp heat reminded me of Zanzibar. A ragged square to the north still bore the platform of poles erected to hail the return of July 2nd—the Provincial Independence Day. There is another open space to the south, and the Chapel of N^a S^a do Rosario, which appeared so grand in the offing, was a bald little chapel, with its ruined sacristy to the north.

The people number about 1500, more or less. Here men are so incurious that after living thirty years in a hamlet of fifty houses they have never taken the trouble to count roofs or noses. We met with, however, some signs of animation; the tailor was at work, and beer—everywhere the test of civilization—was for sale in the shops. Salinas and good breeding grounds† lie on both sides of the stream. The popular complexion, however, shows sign of dyscratia, and a French “Commis-voyageur,” collecting the debts of his Bahian employers, complained of fever, and declared that life at Remanso is “heute roth morgen todt.” The “curandeiros” have given some dietetic ideas, and have taught the sick to use bitters rather than sweets. Lieut.-Col. José Cirino de Souza, who acknowledged by a visit my introductory letter, was astonished to see M. Davidson devouring sugar, more Americano, after suffering severely from ague.

At 4 P.M. we set out, and having run a league down-stream, we

* The ridge cannot be of importance, as it does not produce any but the smallest influents.

† We here caught the first carrapato-tick since leaving Urubú.

anchored at a Corôa opposite the Serra do Sobrado. Here we seemed likely to rue the night of

Mali culices ranæque palustres ;

and, in addition to the gnats, the mosquitos, which during the day had comfortably housed themselves under the awning and in the nooks of the ajôjo, began to sing and sting. The latter, however, after a few minutes rose and departed ; only a few unusually pertinacious passed with us the night. Presently, as the sun disappeared, hosts of large ruddy bats (noctilionones) wheeled with their jerking flight, and skimmed the surface of the stream. The thermometer speedily fell to 68°—70° (F.), and the high wind combined with the saturated atmosphere made us tremble with cold. At the same time it effectually silenced the frog concert.

Oct. 15.—This furious weather is, they say, the effect of the full moon, and the wind shows no sign of weariness. On the right bank a block of mountains rise suddenly from the “Baixada,” or plain, and prolongs itself down the stream. To the left is the abrupt Sobrado, with cones and outliers. The upper parts were brown, and the lower skirts were already turning green ; the hasty drainage probably causes this exceptional phenomenon. M. Halfeld makes the material “Itacolumite with hydrate of iron and pyrites,” the sign of auriferous formation. The name is derived from a feature which will be common further on, a tall pile of white stone, emerging from the bush, and not unlike a two-storied house. As we approached (7·25 A.M.) the low and sandy Ilha da Tapéra (do Muniz) an “olho de boi” drove us across the waves, which swept over the raft platform, and in a few minutes we found shelter amongst the shallows to the left. Here we passed the day, imprisoned by the north-east wind. Happily I had with me a few pocket classics, the woe of my youth, the neglect of my manhood, and the delight of my old age, and with Hafiz and Camoens, Horace and Martial, occupation was never wanting.

Beyond Remanso the channel bends round directly to the east, and runs in long reaches, with more or less of northing, but seldom trending towards the west. The wet weather will now cease ; the rainy season will break in mid-November, and last only four months ; and the showers, which in other parts begin and end the true rains, are often absent. The skies will be clear

ultramarine, and the evaporation excessive; book-covers will again curl up, and ink will dry in the pen. The sensation was at first that of a St. Martin's summer,* and, though we had been threatened with all manner of sufferings from the sun, I judged the climate to be very healthy. On the other hand we are entering a funnel, a fine conductor of wind, and barcas sometimes take fifteen days to cover the 108 miles † between this and Joazeiro. The gale will sometimes last even through the night, and I find in my journal that every day's Trade is worse than the day before. The draught increases because the land becomes more sandy, and there are frequent tracts of rich Jacutinga. Below Remanso also we miss upon the Corôa the diamantine "formaçãõ," and this suggests that sometimes the supply of the upper bed is not washed from a great distance. Of the granite and carbonate of lime I will speak when we reach their limits.

Oct. 16.—Despite the head wind we set out at dawn. Passing the Ilha Grande do Zabelé, a monster of an island, we saw in the stream lumps of whitish rock, which proved to be pure limestone. ‡ After two hours we were driven to take refuge on the right bank. Here the land is inundated, and the short manioc must be taken up before the floods. The plots were defended against cattle with a wealth of timber. The marshy soil produces the largest and spiniest "Tucums;" the stems were at least thirty feet high, double the normal size, and the thorns were strong enough to pierce a cow's hide. This Palm (*Astrocaryum tucum*) § is so unlike a palm that Sellow would not admit it into the family, and at first sight the stranger feels disposed to agree with him. It is found growing upon the seaboard, and extending to altitudes of 1000

* The pilots, indeed, called it the "veranhico," which breaks the rainy season about December or January. In Peru it happens about Christmas; hence it is called "El Verano do Niño"—the Summer of the Babe. The Spaniards, be it remarked, are far more poetical in thought and feeling than the Portuguese; it is the Arab *versus* the Roman. On the other hand, the Portuguese have produced far better poets than the Spaniards.

† The pilots who, I have said, always exaggerate distance, make 40 instead of 36 leagues from Remanso to Joazeiro, and 18 instead of 16 to Sento Sé.

‡ M. Halfeld (*Relatorio*, p. 117) calls them "Rochas Vivas," whatever that may

mean.

§ This is the Toucoum of P. Yves d'Evreux (1613). It is mentioned by Piso and Manoel Ferreira da Camara (*Descripçãõ fisica da Comarca dos Ilheos*). Arruda (*Cent. Plant. Peru.*) has a poor opinion of the fibre, and his description has been analysed by Koster (*Appendix*, vol. ii.). John Mawe attempted it, and was duly criticised by Prince Max. (i. 118). In the *Compendio da Lingua Brazilica*, by F. R. C. de Faria (Pará, Santos e Filhos, 1858), we find that the Tupys called the fruit of the Tucum, "Tucuma; Mr. Bates (i. 124) writes Tucumá; and the Peruvians call it "Chambira."

feet, where it prefers shady ground. Usually the "frêlé palmier" is from twelve to sixteen feet in height and five to six inches in diameter. The hard black nut produces an edible almond; the fibre is drawn by folding the foliole and pulling out the nervature of the parenchyma with a peculiar knock. The novice who ignores the twist is sure to break the leaf before the threads are drawn out naked, and a practised hand makes only one-eighth of a pound per diem. The practice is, doubtless, derived from the "Indians," who make their bow-strings of "tucum" fibre, cotton, or Bromelia-bast. Maceration was tried and failed, as the leaf decayed at the end of a week. On the Brazilian seaboard Tucum thread is used for fishing-nets, and bales of the greenish yarn pass as money, with the average value of 2\$000 per pound. On the São Francisco River the Tucum is also valued by seine-makers. The leaves when young make good mats and baskets, and when old, thatch. We cut down many of these prickly palms for walking-sticks. They are strong, heavy, and elastic, polishing to a fine dark colour, like those of the Brejahúba palms (*Astrocaryum Ayri*).

Here we struck upon and followed a cattle path leading west. The surface was sandy, with platforms of slabs or lumps, compact or scattered, of carbonate of lime, almost marble, ready to make a shell road. Nothing could be finer than the soil, which in places was flooded by the late rains. We were charmed by the vegetation. The "Ingá" Mimosa was hanging itself about with soft white balls, whilst the Juá (*Zizyphus*) and the Favelleiro in bud gave out the most grateful odour. The Páo Pereira* (a *Casuvia*) bore apple-like flowers; it gives wax; the bark is used for fevers; and an extract of it kills, like mercury, the "bernes" that appear in the wounds of cattle. The leguminous "Páo de Colher" (Spoon-tree), a congener of the far-famed "Brazil-wood," turns up its holly-like leaves, as the frizzly fowl does its feathers. The *Convolvulus* displays especial beauties, and the species of *Bignonia* (?) known by the general term "Açoitá Cavallo," or "Switch horse," overrun the trees, forming splendid canopies with delicious perfume. One bears trumpet blossoms of the finest mauve colour, and the other, silver-gold with leek-green leaves, is a delight to the eye. We shall often see them down-stream. Many of the

* Or Pereiro: it is mentioned by the System.

growths had a spicy odour. The Cactus was everywhere, from the Turk's Fez to the tall Chandelier, nor were the Bromelias less in force. The aloe-formed species (*Vellozia Aloifolia*) was putting forth long spikes of deep-pink flower, tipped with purple and light blue. Another, called by the general term Carauá (*Bromelia variegata*), had whitish-green transversal rings upon the dark-green surface, and a terminal spur, sharp as a scorpion's sting, which reminded me of the "Hig" of Somali-land. This species produces the best white fibre for hammocks, and it is stronger when not macerated in water.

Presently we reached the base of the "Serrote do Tombador." It is a detached buttress, now a common feature, and, from different points of view, it appears circular, pyramidal, or cuneiform; it looks higher than it is for want of comparison. The material is magnetic iron,* of which traces are found in the clay of the river bank: and it is based upon limestone, its natural flux. The ore was almost pure, and large fragments might have served as anvils; it broke into rhomboids, glittering with finely diffused mica, and it was banded with the whitest quartz, and here and there faced with a paste of pudding stone. The needle was so much affected by it, that we were compelled to take the sun for our guide. Rock crystal, the "flower of silver," was scattered about, and quartz seamed with black mica glittered like galena.

A sharp ridge, striking east and west, crested the hill, which may be 250 feet high; the northern flank is precipitous, but it is easily ascended from the south and from the south-east. The Mimosas and thorny trees become rare as we ascend, and presently disappear, the Bromelia dwindles to three or four inches in length, without, however, any abatement of its injurious thorns; the cylindrical cactus is mostly in decay, and from the irregular cleavage of the hill-top, the Macambira raises its tall flower spikes waving in the air. Iguanas and lizards, real salamanders for sun-heat, had here made their homes. We passed the earths of the little Môcô coney, and bleached shells (No. 4), rare below, above common. At this season, unfortunately, all are dead, and the young race will not appear till the rains set in. A pair of fine pearl-grey hawks, with white waist-

* Ferro Oligisto, M. Halfeld (Rel. p. 118).

coats (*Falco plumbeus* ?), screamed at us, hovered over our heads, and seemed prepared to do battle: probably the nest was near. These birds have a rapid flight, and are said to be good hunters.

From the summit we had a view which disclosed at first glance the gigantic scale of the denudation.* The yellow stream flowed in a broad band at our feet, through a plain subject to floods, and with a minimum breadth of six leagues. It was buttressed by a number of deceptive cones, like that upon which we stood; some grey-coloured with limestone, others dark with oligiste, and their superior hardness had preserved them from the common destruction. Both sides of the valley were highlands; to the north the forms were less regular, and the softer portions had been worn away. On the south appeared three long terraces curving into several bays; below the horizontal surfaces of the upper heights long white lines of perpendicular wall, like sea cliffs, capped their slopes, regular as if laid out by the hand.

Descending the hill, we found the wind breaking the current into backward-rolling yellow yeast. Occasionally taking shelter under a *Girão* of four posts with fascined top, we collected the zebra'd snail-shells scattered over the fields. They were met with chiefly in the *Maníba*,† the dwarf manioc, which ripens in six or seven months. At 2:30 we embarked, but shortly afterwards an opalescent "Olho de boi," crowning a thin column of rain which was falling in little sheets all around, drove us to an anchorage under "As Queimadas." Here the bank, twenty-two feet high, is cut into broad steps by the floods which spread two miles into the country. The people attribute the extensive caving in ‡ of the side, where, by-the-bye, the river forms a gut, to the gambols of the monster "Minhocão" in the days that were. No one, however, would affirm that he had seen the "Worm."

The little settlement contains about fifty thatched huts, the people fish, breed cattle, sheep, and long-legged pigs, cultivate

* "They reminded me of Mr. Bates' description of flat-topped hills between Santarim and Pará, in the narrow part of the valley near Almeirim, rising 800 feet above the present level of the Amazons."

† Usually "Maníba," or "Maníva," is the stalk of manioc, the root is "mandioca," the juice is "manipuera," and the leaves are "manisoba." The latter is pro-

bably the "manacóba" which Gardner applies to a large species of the *Jatropha*. The root was the staff of life to the Brazilian "Indians," and the civilised race has inherited from them an immense terminology descriptive of the plant: a volume might easily be filled with it.

‡ "Desmoronamento." M. Halfeld (Rel. p. 119) also heard this legend.

maize and manioc, and send to Remanso fruits, oranges, and limes, grown upon the other bank. Despite the sunset of purest yellow gold, the high east wind blew all night, and lowered the mercury to shivering point, 68° (F.). The repose was not comfortable, the tender-canoe bumped unceasingly against the "Eliza," and the latter rocked like that great ship which admitted the cow into the ladies' cabin; the village drunkard periodically visited us, asking for fire till the small hours, and the dog Negra received him with furious barking.

Oct. 17.—A fine sky and heat-promising sun were perfect conditions for a gale. We passed on the right bank the Fazenda do Monteiro, a clearing with tiled huts. Behind it is the Morro do Monteiro; it is a cone seen from the west, from the east a saddle-back with smaller adjunct; the colour is grey, and we picked up only sandstone and ferruginous quartz. After three hours of vain struggling, we anchored at Trahiras on the southern bank; here also is a Morro, which yielded Itacolumite and quartz.* On the opposite side, the Serra do Pico with the conical Morro do Chifre form a segment of an arc, whose hollow is to the stream. It is a low mass with "flanes tourmentés" and cups which, due to weathering, suggest parasitic craters; a large ypoeira flows past its southern base.

Resuming our task in the afternoon, we were soon driven to the Fazenda do Oliveira, six leagues from Sento Sé. The place swarmed with negrolings and poultry, amongst which were a tame Jacú (Penelope) and a peacock, which surprised us with its melancholy cry. A fine fat pig (capado) was offered for 10\$000. The proprietor, Lieut.-Col. Antonio Martins, stalked about the premises, but did not address us as we brought no introductory letter; had he been a Paulista or a Mineiro, we should have seen more of the inside, less of the outside, of his house.

October 18.—An awful stillness at dawn was a bad sign. The river had greatly fallen during the night; we grounded heavily at the outset, and we had hardly turned the point when the cutting cold east-wind set in, and drove us ashore, whilst the deep blue cloud-bank threatened to keep us "in quod." All our attempts to break prison were unavailing till the after-

* Here M. Halfeld found veins of chlorite and pyrites.

noon, when the increased heat produced flows shifting to the south. We passed the thatched huts, with here and there a tiled house, called "As Arêas" and "dos Carapinas,"* backed by high waves of white sand. After working five hours to cover nine miles, we were driven to the right bank, near the Povoação da Lagôa. A swamp behind it swarms with water-fowl, and on the northern or opposite bank is a little stream, the Barra das Itans.†

October 19.—This day's weather reflected that of yesterday. We set out at 5 A.M., and were soon forced to lay up under the shelter of a Corôa. On the northern bank, rising from chocolate-coloured bush, was a white-capped dome with a bald ridgy head, and further to the east, the Pico de Santarem, a sharp little cone. Here the crew sold part of their stock to a stout young fellow, the main of whose dress consisted of a bit of leather. He can always catch fish and sell it when caught, and he professed the profoundest indifference for anything but straw hats and sweetmeats. The sands supplied us with an abundant collection of live and dead shells (No. 3).

At 1:40 P.M., when the fiercest gusts had blown themselves out, we again began to wind between the island, sandbanks, and shoals, which rendered steering a difficult task. The right bank, populous with villages and farms, was very rich land; canoes were fastened to the beach, and piles of wood, cut and squared, stood ready for sale. Here the stream was overhung with a shrub, whose homely form we had but lately remarked. The people call it Mangui (here Hibiscus); it is, however, a dwarf willow, which grows in beds, and supplies strong and supple withes. The leaves are spiny at the edges, somewhat like the holly, but by no means so well armed; the rest of the shrub reminded me of the Amazonian *Salix Humboldtiana* (Willd.), according to Mr. Spence ‡ the only species of true willow known in the hot equatorial plains.

As we advanced the river showed a clear channel, and we

* "Carapina" in the *Lingua Geral* is translated Carpuiteiro; it is possibly an "Indian" corruption of the latter word; but it is popular in Minas Geraes and on the São Francisco.

† Also written Itans and Intanhas. Itân in Tupy means a shell generally.

‡ (*Journal*, p. 90, *R. Geog. Soc.*, vol. xxxvi. of 1866.) Mr. Davidson remarked that everything is thorny in these lands, even the willow. I did not neglect to collect specimens of this curious shrub: unfortunately they were lost.

passed on the right bank the barras or mouths of two streams, "da Ypoeira," and "de Sento Sé."* The former drains a lagoon to the west-south-west, and the latter is fed by the southern highlands. At 4 p.m., after again wasting five hours over nine miles, we came to an anchorage—the Porto de Sento Sé.

* In Mr. Keith Johnston's map we find below Sento Sé the mouth of a long dotted line, the "R. do Salitre," which, with a course of some 35 leagues, drains the western counterslopes of the "Serra Chapada Diamantina." The people assured me that the stream falling in above Sento

Sé is of very limited extent; and, as will be seen, the Riacho do Salitre enters the main artery close above Joazeiro. Here the influents greatly diminish in number and importance: the flanking ranges approach the river valley, and render it very different from the higher stream.

CHAPTER XXIV.

FROM THE VILLA DE SENTO SÉ TO THE CACHOEIRA DO SOBRADINHO AND THE VILLA DO JOAZEIRO.

NINTH TRAVESSIA, 18½ LEAGUES.

SENTO SÉ DESCRIBED.—INDOLENCE OF PEOPLE.—THE PORTO.—THE WOMEN.—LONG DELAYS BY WINDS.—PRETTY COUNTRY.—VILLAGE NEAR THE ILHA DE SANTA ANNA.—WE ATTACK THE CACHOEIRA DO SOBRADINHO, THE FIRST BREAK AFTER 720 MILES.—OUR LIFE ON THE RIVER.—PRECAUTIONS FOR HEALTH.—REACH THE VILLA DO JOAZEIRO.

O prospecto, que os olhos arrebatá
Na verdura das arvores frondosa,
Faz que o erro se escuse a meu aviso
De crer que fora hum dia O Paraiso.

Cura. 7, 75.

THE "Porto de Sento Sé"* consists of fishermen's huts in a row, separated by a tall wooden cross; a few of the tenements are tiled, most of them are thatched, and the walls show a watermark three feet high. All have small compounds grown with shrubs, especially the Castor-plant. The soil is white and sandy, and the floods penetrate deep into the land. It is difficult to understand why the first dwellers did not prefer the opposite bank, where, a few yards higher up, the channel is clean, and there are two undulations which the waters can never reach. We walked to the Villa de Sento Sé, about a mile (1550 yards) to the south-west. The poor dry plain, now coarse yellow sand, becomes during the rains a stream bed: we saw the weeds of the last floods adhering to the shrub-stems. It was sprinkled with

* M. Millivet (Geog. Dict.) has grammaticized and nonsensified the word to "Santa Sé," which has been adopted by Mr. Keith Johnston. M. Halfeld, following the pronunciation, writes it indifferently Santocé, Sentocé, Centocé, in the Map Sento Sé. There are

many similar names on this part of the stream, as Urugé and Prepeçé (before noticed). Sento Sé, like Sabará, was the name of an Indian Cacique to whom the lands belonged, and I have followed the spelling adopted by the Sento Sé family.

the Carnahúba palm, which seems to delight in these situations of extreme wet and excessive aridity. On the left of the path was a bit of water which, with its neat border of trees and its central islet, looked artificial; the silent spoon-bill paced away in his delicate rosy coat, and the noisy harlequin plover fled screaming as we approached.

The Villa is at the margin of this "dry swamp;" to the south and west the horizon is fringed with Carnahúbas, showing the course of the stream. About half a league behind it are two lumpy hills gashed into red and grey quarries, and lined and patched with white quartz and sandstone. Here they form cliffs and walls, there they are detached buttresses; the general colour is that of the sunburnt flat, and they seem to reek with heat. This Serra do Mulungú* is, apparently, an offset from the Serra do Brejo, which up-stream showed its white cliff-walls, and which now bends from south-west to north-west. The material is granite piercing through the sandstones and secondary formations; we are fast descending to the rock-floor, the core of the land, and we begin to know without being told that we must be approaching a succession of Rapids.

The entrance to the Villa was viâ the prison, a tiled roof, lath and plaster walls (páo a pique), and iron bands nailed to a window frame. Opposite it stood the Church of S. José, remarkable only for its excellent bricks, and for the "Cantariá" quartzose granite, with spots of black mica in the blue-grey matrix; † with the exception of the wandering block shown to us at the Brejo do Solgado, it is the first upon which we have lighted since we left the coast ranges. Hence it will extend at intervals all down the São Francisco.

By the side of the church, facing north-west, and raised above the floods, are half a dozen tiled and white-washed houses; behind is a scatter of palm-thatched huts, and the only neat tenement is that of the Vigario. The travelled "Menino" bitterly scoffed at this attempt at a Villa, where we found fresh meat and rum, but could not buy even the pepper of the country.

* Mulungú (probably an African word) is the name of a thorny leguminous tree with beans of a lively red and black like (but much larger than) those of the *Abrus precatorius*. They are mashed and applied to the wounds of animals when the "bicho"

has entered.

† M. Halfeld (Rel. 124) calls the rock "gneiss-granite," and declares that he found in it pyrites which may prove auriferous.

Signs of a smithy appeared upon the ground,* but no symptoms of an oven; here they prefer the Pão de Milho, an unleavened "Seven days' bread," of maize-flour kneaded with boiling water. Other favourite dishes are "faróffa," or "passóca," pounded meat mixed with farinha, fubá, or even bananas.

The life of these country places has a barbarous uniformity. The people say of the country "e muito atrasado," and they show in their proper persons all the reason of the atraso. It is every man's object to do as little as he can, and he limits his utmost industry to the labours of the smallest Fazenda. These idlers rise late and breakfast early, perhaps with a sweet potato and a cup of the inevitable coffee; sometimes there is a table, often a mat is spread upon the floor, but there is always a cloth. It is then time "ku amkía," as the Sawahilis say, to "drop in" upon neighbours, and to slay time with the smallest of small talk. The hot hours are spent in the hammock, swinging, dozing, smoking, and eating melons. Dinner is at 2 P.M., a more substantial matter of fish, or meat, and manioc with vegetables at times, and everywhere, save at Sento Sé, with pepper-sauce. Coffee and tobacco serve to shorten the long tedious hours, and the evening is devoted to a gentle stroll, or to "tomar a fresca," that is, sitting in a shady spot to windward of the house and receiving visits. Supper ushers in the night-fall, and on every possible occasion the song and drum, the dance and dram are prolonged till near daybreak. Thus they lose energy, they lose memory, they cannot persuade themselves to undertake anything, and all exertion seems absolutely impossible to them. At Sento Sé the citizens languidly talk of a canal which is to be brought from the Rio de São Francisco at an expense of £1680. But no one dreams of doing anything beyond talking. "Government" must do everything for them, they will do nothing for themselves. After a day or two's halt in these hot-beds of indolence, I begin to feel like one of those who are raised there.

Returning to the Porto we amused ourselves with prospecting the people. We heard of two elders who could give information, both however were absent, and the nearest approach to manhood in the place was a youth in a suit of brown holland and a wide-awake of tiger-cat skin. We hunted up, however, an intelligent

* The iron, we were told, is brought from the neighbouring Fazenda de Sento Sé of João Nunez, upon the stream of that name.

old Moradora (habitantess) who did her best to enlighten us. The washerwomen, officially called white, worked nude to the waist: the subsequent toilette was a shift that exposed at least one shoulder, and displayed the outlines more than enough, a skirt and a bright cotton shawl often thrown over the head. The feet were bare, but the hair, which was admirably thick and glossy, was parted in the centre and combed out straight to below the ears, where it fell in a dense mass of short stiff ringlets, reminding one of Nubia. Some women and many of the children had erect hair, a "Pope's head," a fluffy gloria standing out eight inches, like the "mop" of a Somal, or a Papuan negro. One girl had taken for her pet a leaden-coloured, hairless dog,* whose naked skin had a curious effect when compared with the head of its mistress. The only trace of occupation was the twanging of a Jango, or African music-bow, which, in the hands of a boy, produced a murmur which was not unpleasant.

Before night a small fleet of barcas, which had been weather-bound, and which the little raft had beaten, came in racing, and regulating by horn and song the measured dip of their long sweeps. During the floods they can drop down from Remanso to Joazeiro in twenty-four hours, now they will have spent nine days. This is the last trip of the year, and all are anxious to end it. Most of the barcas had women on board in toilettes as simple as those ashore. The patrão on the other hand often wore old clothes manifestly of French build, a sign that we are nearing civilisation.

October 20.—We set out at 3 A.M., when the barcas were all asleep; the thermometer showed 78° (F.), which encouraged us to expect Mormaço, clouded and windless weather. We were not disappointed in a good working day. On the right, and lying from south-west to north-east, was the Serra da Cumieira,† shaped like a vast pent-roof; two days ago we saw distinctly its snowy-white cliff walls resembling "Palisades" of dolomite, and terminal ramps slightly concave. It is prolonged by the Morro do Frade, a similar formation, which takes its name from a single pike or organ-pipe standing out from the abrupt preci-

* Prince Max (i. 219) informs us that he never saw a specimen of these hideous canines, which are now not uncommon at Bahia. He refers to Humboldt (*Ansichten der Natur*, p. 90), who mentions them in

Spanish South America.

† From Cume, a top or ridge-beam, thus we say the Comb of a hill. The Cumieira (M. Halfeld, p. 126, Comieira) is opposed to the "Caibros" or rafters, which sup-

pice. The shapes of the mountains now change to the plateaux and quoins, the ledges, bluffs, and uptilted cliffs of a granitic country; these are probably ramifications from the primitive ranges nearer the coast. The river is of noble breadth, 4870 feet, and its right bank about the Sitio da Gequitaia * was pleasant to look upon. Near the water-side, plentiful as Hibiscus on the higher stream, rose in bushes of tender, velvety verdure, dotted with decayed leaves of dull gold, the large trumpet-shaped and mauve-coloured flowers of the Sensitive Canudo, which, however, with all its beauty serves only to poison cattle. On more elevated ground, and sprinkled with the Carnahúba, were fields of the dwarf Maníba-manioc and hay, where ate their fill unusually fine horses and asses. The fences of the wax-palm frond effectually keep out the destructive water-hog (Capivara) and extend to the stream-brink, with passages here and there left open to the water. The countryman is evidently more industrious than the townsman, and I was surprised to see so many evidences of civilisation, where all is supposed by Rio de Janeiro to be a barren barbarism.

Since morning dawned we observed outcrops of rock in mid-stream, and on both sides; they are probably limestone, which M. Halfeld calls "Pedras Vivas." Near Encaibro is a deposit of calcareous matter to a certain extent quarried. Further down, where we landed for breakfast, the bank was red with iron and mottled with pyrites; along the brink lay bits of calcareous tuff, water-washed into curious shapes, thigh-bones, knuckles, circles, bulges, and spinal processes. Nearly opposite us was the Riacho da Canôa, said to flow near a rich Salina; hence probably the neighbouring chapel, neatly tiled and white-washed like a bride-cake, towards which parties of people in Sunday garb were paddling their canoes.

The sun, nearly overhead, waxed hot, and it stung. Yet under the flimsy awning the heat tempered by the breeze never exceeded 87° (F.), and on shore 90° (F.). At 2 P.M. we saw on the left bank the Casa Nova, a large white and tiled house near the left jaw of its "riacho." † It was fronted by a long sandbar,

port the "ripas" or thin longitudinal strips under the tiles.

* M. Halfeld writes Giquítaia, and translates it (Rel. 126) "pimenta soccada com Sal."

† Above Casa Nova Mr. Keith Johnston places the "R Casa Nova," which he makes the frontier line between Bahia and

Pernambuco, running about twenty leagues from the great river, nearly due west to the long dividing range between the Valleys of the São Francisco and the Parahyba. As will be seen, the frontier is in the 241st, not the 234th league. M. Halfeld has laid it down correctly.

which the waters had partially covered, and a dwarf vegetation grew apparently from the depths. Below it the bank was green with the sweet Capim Cabelludo :* the Capim d'Agua ; the Taquaril, a thin bamboo used for small pipings and fireworks, and the Zozó, or Sosó, a kind of Pistia, like the P. stratiotes of the Central African lakes. The pebble-banks and the sand-bars are grown with the Angari, also called Járamatáia or Jarumátaia, which springs up even when nearly covered with water ; this stiff and woody shrub, resembling a strong osier, will extend as far as the Great Rapids. The wild Guava (Araça) is familiar to us since the mid-course of the Rio das Velhas. About sunset the São Francisco was a grand spectacle, of immense breadth, smooth as oil, and reflecting, like a steel mirror, heaven and earth. The typical formation now appeared clearly developed on both sides ; we no longer see the rule of rolling, rounded hills and waves that characterise the Highlands of the Brazil ; yet there are ridges that continue in many parts to be stone-faced and white-banded above. In front a distant block, the Serra do Capim, showed behind it a dwarf rounded block which glittered like snow in a Swiss summer. Again, off the Fazenda do Mathias on the right bank, we sighted a low Serrote, lumpy as a camel's back.

This day we had accomplished thirty-three miles in nine hours, an unusual feat, and at sunset we anchored near the left bank above the Ilha de Santa Anna. We prepared for pleasant repose, when the north-east came down upon us, and swept the wavelets over what we called our deck ; the only change was from bad to worst *viá* worse, and *vice versá* till nearly dawn.

October 21.—The wind was “damnado,” as the pilots expressed it, the stream again fell, and, despite the increased velocity of the current, we made no headway. We therefore anchored once more on the left bank, and went forth to “hunt” provisions, which are now becoming scarce with us. The margin showed scatters of granite and lime, with a strew of broken shells, and some good specimens of massive laminated quartz of the purest white. The surface of the river plain is sandy ; and the heavy rains last but four months with two of light showers ; yet the soil, enriched by the calcareous matter below, supports flocks of sheep and goats. Here the convolvulus with fleshy

* This useful growth is unknown to the higher stream : it derives its name from the roughness of the stem and of the under surface of the leaf.

leaves, and pink trumpet-flower (*Ipomœa arenosa*), was a reminiscence of the African coasts. We soon struck upon a bush-path leading to a couple of huts, where good cotton was growing in a fenced field. Yet the people were in rags; and rags, though we think little of them in England, here startle the eye: the women had not taken the trouble to weave the tree wool almost within hand-reach of their doors. There was a Giráo-garden of lavender and geranium for decorating the hair, but no one had planted oranges or melons, bananas, or vegetables: not even rice was to be had. The country can produce all the wants of life—it bears nothing; the people should be well off—they are in tatters. I compared their state with those a few leagues higher up, and can explain their inferiority only by some difficulty of communication.

After walking 400 yards we crossed the inundated low land, and reached what may be called the true coast. Here the rise was strewed with water-washed “cascalho” and angular “gurgulho” in regular lines. The soil was drier than usual, and amongst the Cactaceæ towered high the *Mandracurú*, or *Mandacurú* (*C. brasiliensis*, Piso). It is a singular growth, often thirty feet high with two of diameter, and the huge limbs, garnished with stiff thorns, stand bolt upright. The wood is a bright yellow colour with longitudinal white streaks; it is excellent for roof-rafters (*Caibros*), and further down it makes the best paddles. The weight, however, renders it unwieldy, and the newly-cut wood falling into the water sinks like lead.

In the evening—anything for a change!—we dropped two miles down-stream to the Santa Anna village. Here it is proposed, during the dry season, to station the steamer which, during the floods, will lie at Joazeiro, nine leagues distant. At present it is a lump of pauper huts raised but little above the bank, whose iron-stained and water-rolled pebbly beds accompany us some way down. For four patacas (1\$140)* we engaged a pilot for the Rapids, called do Sobradinho or de Vidal Affonso.† During the last 720 miles we have seen nothing but a wind-ripple; this is the portal of a new region, and the river will offer ever-increasing difficulties, culminating in an impossibility. We examined

* Barcas pay 4\$000, and when lost nothing.

† “Sobradinho” is rock-boulder, generally crowning a hill, and of smaller

size than the Sobrado. Concerning the old name, “Vidal Affonso,” at present found only in books, I cannot offer the least information.

carefully the lay of the land and stream. Opposite Santa Anna is the Ilhote do Junco, a mere sandstrip, backed by the Ilha do Junco, or de Santa Anna, an inhabited and cultivated island nearly four miles long, by one and a half broad. The channel running from west to east, trends at the end of the Santa Anna island to the south-east, and breaks over scattered rocks for about one league, rendering the whole of the right-hand channel unnavigable. On the left bank the Serras da Cachoeira and do Sobrado approach the stream with a lay from north-east to south-west. Upon the opposite side the Serrote do Tatauhy springing from the south-east completes the head of a broad arrow with the Serra da Castanhera* from the south-west. The latter has a roof-ridge outline slightly bent in the middle, and near the stream projects a white knob, the Serra do Capim. The reefs are nothing but the subaqueous prolongations of these aerial granitic lines.†

Oct. 22.—Despite wind and sun, and “solemn warnings,”—the people caution us against accidents, and I “take blame,”—we shipped the pilot Jacinto José de Souza, and set out at 2 P.M. to attack the Cachoeira do Sobradinho. Running in an hour down the smooth water to the north of the Ilha de Santa Anna, we came to the head of the Ilha da Cachoeira—a thin strip of well-wooded island—about four miles long, with a narrow channel between it and the left bank. The main stream, still flowing on the right, is broken by a number of tufty islets; the pilot declares that it would be suicide to attempt this gridiron of reefs trending from north-east to south-west, forming the Cachoeira do Junco, and ending in the fierce Cachoeira de Tatauhy.

The navigable Chenal on the left is called the Braço da Cachoeira or do Sobradinho; the upper mouth, 200 yards broad, presently narrows to half that width, and the general trend is south-east, with shiftings to the south and east. Here the smooth water ends, and the current greatly increases, never, however, exceeding six miles an hour.‡ The first obstacle was

* M. Halfeld calls it the “Serra do Sacco do Meio.”

† Behind this broad arrow, and forming, as it were, its shaft, is the Serra do Salitre or do Mulato, which resembles in gentle brown ramp and upper white bluff the Serra da Cumieira below Sento Sé. When

approaching Joazeiro, the highest part of this range seems to be capped by a bonnet, like the “Pintor” of Chique-Chique.

‡ Of course I mean at the time when we passed it. Even then the six miles may be diminished to an average of four miles an hour.

a pyramid in mid stream, with a platform of rock "en cabochon," projecting from the left bank. The material is a large-grained brown-grey granite, often iron-stained and veined with quartz; it has large holes, in which the salt-maker evaporates the saline water which he has obtained by straining the mould.

Immediately below the pyramid, the canal is again split by two islets, the Ilhotas da Cachoeira. The upper is of low vegetation; the lower supports trees;—and in these places the Joazeiro and the Jatobá, the only growths of any importance, are nobly developed by the exceedingly damp air. In 1857 the head of the second Ilhota was cut off by the current, which also washed away a slice of the left shore proper, upon which were four houses. Unless arrested by the granite, it will go still further, and thus Nature will be her own engineer. The clear way leaves to the left the upper Ilhota, whose head is garnished with lumpy rocks, and strikes, as usual, the apex of a triangle: here two small breaks, passed within four minutes, make the water eddy and boil on both sides. The largest stones are on the right, where an islet is forming, and they might easily be removed by blasting.

Below the second Ilhota is the true Cachoeira do Sobradinho, denoted by a fine clump of "Cupped" trees on the long island to the right; the left bank shows houses and fences extending all the way down. This chief obstruction is a wall built across stream, with a central breach* where the water breaks in two places. Here barcas prefer cordelling; they are assisted by the willing country people, who stand upon a low rock on the left side; but accidents are by no means unfrequent.† We turned stern on, and changing paddles for poles, took, the wind being in our teeth, the left side of the breach. The gap between the two rock slabs, worn into pot-holes, and channelled by water, was so narrow that we almost scraped sides. The sunken stones below this point were easily avoided.

After two hours' work we came to the Cachoeira do Bebedor,

* M. Halfeld calls this part the "Caixão:" he makes it 5·70 to 7·1 feet broad, and in the dries almost too narrow for barcas to pass through. The greatest height of the rock above water is 8·60 feet; the current is 4·17 miles per hour, and the height of fall 3·6 feet.

† Here M. Halfeld's barque, the *Princeza do Rio*, snapped her tow-rope, and was nearly lost. We read in the *Relatorio* (p. 132)—

"They informed me that the pilot who guided my vessel during its descent of the rapid perished in the same place." *They* assured me that Manuel Antonio, the pilot in question, had fallen out of his canoe, and had been drowned in smooth water, of course after "liquoring up." Nothing but the greatest carelessness can cause an accident at the Sobradinho.

opposite the hamlet of that ilk ; here again the snags and rocks offered no difficulty. The next was the Cachoeira Criminosa, of which the worst part is the name ; here, however, the blind rocks are hard to thread, and necessitate frequent passing from side to side. We are now at the south-western foot of the Serra do Sobrado, a remarkable formation which has long been in prospect. Seen from Santa Anna, to the south it is a quoin-shaped mass, with snowy lines sloping to the stream ; and it appears to be on the right, whereas it hems the left bank compressing the channel. A nearer view shows the lower three-quarters, invested with tall, thick bush, which dwindles in stature as it ascends ; below the crest are two nearly parallel bluffs of bare rock, inclining towards the water, and separated by a thicket-grown level. In the under-cliff appeared the dark mouth of a cave ; and further down there is, they say, a larger tunnel.

The mass wears the look of limestone, based upon the granite which outcrops in the river.* The peculiarity of aspect has supplied it with sundry legends. According to the people, a "corrente," or large chain, has been found extending from top to bottom. Our pilot, not an imaginative man, derided the chain ; but declared that, at times, especially near the rainy season, the mountain made "estrondos," or loud rumbling sounds, adding that the last had been sufficient to frighten him. As I have remarked, tales of roaring hills are common in the Brazil ; perhaps in places the mysterious noises may be caused by the sudden elevation or depression of the mountain.

At the foot of the Sobrado we avoided, by traversing to the right, a succession of small breaks. A little jump was the last obstacle, and at 4:25 P.M. we came to the Boca do Braço, where the south-eastern end of the Ilha da Cachoeira projects a few outlying blocks into the main stream of the S. Francisco, now clean and narrow. Thus we had expended upon the Sobradinho 2 hours 45 minutes, but the wind had always been against us. We landed Jacinto José da Souza on the left bank, and thanked him heartily over a parting "tot:" he is a good man, careful and dexterous, and, wonderful to relate, he works without noise.

This obstruction is in its present state, and at this season, fatal to steamer traffic ; during the floods, the only obstacle must be

* The pilot declared the material to be marble. M. Halfeld (p. 133) describes it as "Itacolumite alternating with strata

of talcose schist and quartz, running south-south-west to north-north-east, with westerly inclination."

the rush of water. Canalising through granitic rock is not likely to pay, and the state of civilisation is here hardly sufficiently advanced to keep up sluice gates. Removing the scattered rocks and bars will draw the water into the central thalweg, and make a safe passage which, when once made, is not likely to be choked. M. Halfeld estimates the expenditure at £39,000, which is, perhaps, the minimum, if at least the three miles are to be rendered navigable for tug-steamers throughout the year. Altogether, the Cachoeira do Sobradinho, this furthest southern outlier of the Great Rapids, is equally interesting to the engineer and to the geographer.

We ran down the line, which narrows from two miles to a quarter of that width, and presently we came to another symptom of rapids, the first rock-islet sighted in the São Francisco. This "hog's-back" amid-stream is the prolongation of a Serrote on the north bank; amongst the broken slabs of the lower part, half masked by tufty growth, is a cavern with a bad name. The novelty of the appearance has, as usual, bred fables; the boatmen, however ugly, will not sleep here for fear of the Siren with golden hair, who lies in wait for them. They know it as the Ilha da Mãe d'Água; but "serious persons," who "disapprove of" Melusine de Lusignan, call it de Santa Rita, a saintess to whom the impossible is possible; and who, little known in England, is festivated (July 12) in the Brazil with novenas and rockets which render the day detestable. At sunset we anchored off the sandbar do Lameirão: we are now within some $9^{\circ} 20'$ of the Equator; the great light is almost overhead, and yet the weather is cold and gusty. Five small huts within sight on the left bank marked the Páo da Historia, the frontier (divisa) between Bahia on the south, and the Pernambuco Province to the north.

Oct. 23.—After an hour and a half of paddling, the wind, from misty clouds, drove us to anchor on the right bank. Here a clump of wild figs, tufted with the mistletoe-like Herva de passarinho (Polygonum), and springing from a bed of soft, short, and green Graminha, the local Bahiana grass, shaded our mats more pleasantly than any tent. These delays were inevitable, and the only remedy was to extract from them as much enjoyment as possible. The prospect lent powerful aid. The lustrous blue sky deepening through the dark fleshy leaves, was the "glazing:"

the picture was a grand flood, flavous as Tiber, coursing behind the gnarled trunks and the buttressed roots of the Gamelleiras. Life and action were not wanting to the poem. Humming birds, little larger than dragon-flies, red-beaked, and with plumage of chatoyant green, now stared at the stranger as they perched fearlessly upon the thinnest twig, then poised themselves with expanded tail feathers and twinkling wings, whilst plunging their needle-bills into the flower cup, or tapping its side;* then darted, as if thrown by the hand, to some bunch of richer and virgin bloom. Compared with the other tenuirostres of the Brazilian grove, which are, however, more dainty and delicate than the tiniest European wren, they were Canova's Venus by the side of the Sphinx. And the little bodies contain mighty powers of love and hate—they fight as furiously as they woo; and no unplumed biped ever died of "heimweh" so readily and so certainly as the humming bird imprisoned in a cage.†

Our day is as follows:—We rise before dawn, and after a "merenda" of coffee and biscuits, or rusks, apply ourselves to writing up journals, and to arranging collections. The crew eat bacon and beans at 7 to 8 A.M.: I reserve the process till 11 A.M., when the neck of the day's work has been broken. The bow of one of the canoes is a good place for a cold bath, and there is no better preparation for the hotter hours. After noon the labour becomes lighter; and the little industries learned by African travel now come into play. For instance, the manufacture of rough cigars with the "funo de tres cordas," the "three-twist," brought from Januaria. "Reading up" is decidedly more pleasant than writing in a rickety raft upon the mattress stuffed with corn-glumes, which acts table, and the scene-shifting of the river and of the mountains, combined with the subtle delights of mere motion, is an antidote to ennui. When the breeze becomes a gale, we explore the valley for shells and metals, or climb the hills to enjoy the scenery; or should the demon of Idleness get the upper hand in his own home, we stretch ourselves beneath the trees, enjoying the perfumed shade, and a life soft as moss, an approach to the "silent land." About sunset, we feed in the humblest way, upon rice when there is any, and upon meat or fish

* I have often found the hill fuchsia pierced in the lower part of the cup.

† Here the people universally believe that the humming-bird is transmutable into

the humming-bird hawk-moth (*Macroglossa Titan*). Upon this subject Mr. Bates has treated (i. 182).

under similar restricted conditions. When the night-birds begin to awake from their day-sleep, we choose some well-exposed place where immundities will not trouble us, and "turn in." It is a life of perfect ease, the only fear or trouble is lest the dark hours should be too cold, or the sun too hot, or the wind troublesome; the *spes finis* is, and should be, the last thing dwelt upon.

During nearly four months' travel down the Rio de São Francisco, with alternations of storm and rain, cold wind and hot wind, mists and burning suns, I had not an hour of sickness. Mr. Davidson, it is true, suffered from "chills;" but he had brought bad health to the river, and he improved in condition as we went. On the other hand, it must be remembered that we did not travel in the bad season, which is here, as elsewhere, near Brazilian rivers, the drying up of the waters. The precautions which I adopted were few, and mostly comprised in my old rule to alter diet as little as possible; it is my intimate conviction that, although the sojourner in foreign lands to a certain extent may, the traveller must not attempt to conform to the "manners and customs of the people." As regards drinking-water, the only necessary care is to wash all the jars every night, and to allow the deposit to settle, which it readily does without alum or almonds. Coffee keeps up the vital heat, and lime-juice corrects that scorbutic tendency which often accompanies the loosened state of the waist-band. On raw mornings, and every night, I "made it twelve o'clock," with a wine-glass of spirits, good cognac (so called), when procurable—Cachaça when there was nothing else. We religiously avoided stimulants, even wine and beer, during the day; and two grains of quinine readily corrected nervous depression. My chief thought was to be warmly clothed when sleeping, a precaution learned from the Arabs of East Africa. The walk and talk were essentially parts of hygiene; but, above all, activity of mind, "plenty to do," contentment, and again, no "*spes finis*."

Oct. 24.—The night was of a stillness so deep, that an unprotected candle would have burned out. Not so the next morning. We passed on the right the Barra do Riacho do Salitre. The small brackish stream can, during the floods, be ascended for some leagues by canoes.* Here the bank is tall, and white with

* Mr. Keith Johnston places a stream far above Joazeiro and another far below it, but none near it.

blocks, layers, and scatters of the finest limestone ; the land is well fenced in, and even the Carnahúbal is hedged with dry thorns. Below it we found a labyrinth of rocks sunken and above the surface ; no improvements, however, are here necessary. After being nearly swamped more than once, we passed to port the Ilha do Fogo, and found quarters in a baylet* at the eastern end of the “ Villa do Joazeiro,” defended by a low bush projecting into the stream. Traders usually anchor further west.

* Here called the Ressaca or Resaca.

CHAPTER XXV.

AT THE VILLA DO JOAZEIRO.

THE VILLA HAS A GREAT NAME UNDESERVEDLY.—THE VILLA DESCRIBED.—THE LANDS ABOUT IT.—PRESENT PRICES OF ARTICLES.—THE VINE.—COLONEL SENTO SÉ AND THE STEAMER “PRESIDENTE DANTAS.”—VISITED THE ILHA DO FOGO.—THE RAILWAYS FROM PERNAMBUCO AND BAHIA TO JOAZEIRO.—RAILWAYS A FAILURE IN THE BRAZIL.—NEGLECT OF WATER COMMUNICATION.—THE BAHIAN STEAM NAVIGATION COMPANY AND A LATERAL TRAMWAY PAST THE RAPIDS THE TRUE SYSTEM FOR EXPLOITING THE SÃO FRANCISCO.

Encrespava-se a onda docemente
Qual aura leve, quando move o feno ;
E como o prado ameno rir costuma,
Imitava as boninas com a escuma.

Caramuru, 6, 44.

I HAD long heard of this place as the future terminus where the great lines of rail were to meet ; on the higher São Francisco it had been spoken of as a centre of civilization, a little Paris, and the Provincial Government of Bahia actually ordered a detailed plan of the place to be made and deposited in its archives. So much for the imagination. Now for the reality.

Joazeiro has a family likeness to the Villa da Barra do Rio Grande. It is a long line of houses fronting the river, which, here some 2500 feet broad, flows in a straight line from west to east. The banks are raised 21 to 25 feet above low-water level, but many of the tenements show flood-marks. The citizens all declare that M. Halfeld was in error when he wrote (*Relatorio*, p. 140), “the greatest rise in 1792 was of 45 palms” (upwards of 32 feet) “over the usual height, so that on this occasion the church was flooded 11 palms deep, and so, more or less, were all the habitations.” In 1865, they assert, the inundation equalled that of '92, and, although it reached the cemetery, it was two or three palms below the church and the main square.

Some of the houses front the stream, especially in the more civilized western quarter; the centre shows a ruinous flight of broad stone steps, and here the abodes turn their backs and their yard-walls to the water, which has washed off the plaster and exposed the skeleton of adobe, or palm-wattle, and dab. The sandy soil requires a foundation of the limestone or the freestone, of which the country is a quarry; the streets, however, are totally destitute of pavement, and only the best tenements are subtended by an embryo bottom of brick. A few trees, under whose shade salt is sold, and small transactions take place, are scattered over the beach, which is strewn with pebbles, pudding-stone, and iron-cemented quartz, in the lowest levels. The Villa has but one sobrado, belonging to some fourteen proprietors, and even this has not a sign of glass windows.

At the western end there is a cemetery, with whitewashed and tile-coped walls, including a dwarf chapel. Thence runs the Rua do Mourão, which fronts the river. Behind this thoroughfare lies the Rua do Açogue, "Shambles Street," and, inland of all, the Rua da Recoada, both ragged lines of poor huts, mostly thatched. These streets have the pretension to hoist the white hand and extended forefinger of Rio de Janeiro, directing carriages which way to go, when there is not a carriage within 300 miles.

About midway in the long shallow line is the Praça do Comercio, whose loose sand, spread ankle deep, forms an excellent reflector for the sun: the chief use appeared to be that of an arena for fighting turkey cocks. Attempts have been made to line it with tamarinds, which are now stunted, and with the fleshy-leaved "Almendreira," or Persian almond,* about eight years old, but poor compared with those further inland. Here are the principal stores; before 1857 there were fifty-two, but many failures reduced the number to fourteen—not noticing the twenty-five "Vendas." That civilization-gauge, the Post-office, is also a dry-goods store; the shopboy permitted me somewhat superciliously to inspect the "dead letters," which reposed in a lid-less Eau de Cologne box. The correio is supposed to go out on the 3rd, the 13th, and the 23rd of each month, and to come in on the 2nd, the 12th, and the 22nd; to-day is the 24th, and it gives no

* I have never seen the flower or fruit of this tree, which resembles the Sterculia. It thrives in the hot humid atmosphere of

Pernambuco, and was planted possibly by the old Portuguese on the East African Coast about Kilwa (Quiloa).

sign, and who cares? Here is a single pharmacy, and the Capitão who keeps it prescribes his own drugs; there is no doctor, and, consequently, there is little mortality. The people are by no means a healthy race; the height above sea level does not exceed 1000 feet, yet catarrhs and pleurisies, fevers and pneumonias, not to mention other diseases, abound. One of the citoyennes had a nose prolonged like the trunk of a young elephant, and an eye to match; the hideous affection was called Cabungo, or erysipelas.

The head of the square is occupied by the new Matriz of N^a S^a das Grutas, of stone, burnt brick, and lime, of course unfinished. I had supposed that want of funds was the cause, the citizens declared that such was not the case; probably it is "politics." Very mean is the original temple, said to have been built by the Jesuits and their "Indian" acolytes. Above are two open windows, or rather holes; below is a similar pair, railed with thin wooden posts; the belfries, as in Sienna of the Earthquakes, are mere walls, with openings in which the bells are slung, and the quaint finials suggest donkey's ears erect in curiosity. Beyond the church is the Rua Direita, a slip of a street running off into space. Here the river is faced by the Rua dos Espinheiros, whose small huts and vendas drive a trifling trade; a large half-tiled shed, sheltering huge wooden screws and new waggons of the oldest style, represents the docks, where the steamer will be launched—when she arrives.

Joazeiro was disannexed from Sento Sé, under whose tutelage it became a freguezia, and was created a villa on May 18, 1833. It is now the head-quarters of the arrondissement (Comarca), and the residence of a Juge de Droit, and of a "Superior Commandant"; it has also a town hall and a jail. The municipality is tolerably populous, exceeding 1500 voters. The townspeople were 1328 souls in 1852, and are now about 2000, of whom a quarter is servile, whilst the houses, which have not increased, number 334, subject to the tax known as the Decima Urbana.

The situation of Joazeiro is, commercially speaking, good—a point where four main lines meet—the up stream, the down stream, the great highway to Bahia, and the road to the Northern Provinces. This central site will secure for it importance in the proposed Province of São Francisco; of course it expects to become the capital, but what is the use of a capital close to the frontier? The position will be that of a great outpost, transmit-

ting to the seaboard the produce of Southern Piauhy and of Eastern Goyaz. It had of old considerable traffic with Oeiras (eighty leagues), formerly capital of Piauhy, and this continues even since Theresina, ninety leagues further, became the metropolis. I found in port only two barcas, and the expense of transport greatly injures trade. The "Viagem Redonda," on going and coming to and from Cachoeira city, at the head of steamer navigation in the Bahian Reconcavo, has lately risen from 15\$000 to 25\$000, and even to 30\$000 per mule, carrying at most seven arrobas—about 10s. per 32 pounds. The down journey, *viâ* Villa Nova da Rainha, occupies ten to thirteen days, the fast travelling being eight leagues per diem; and it is said that a line properly laid out would reduce the distance from ninety-two to seventy leagues.

The lands immediately about Joazeiro, especially on the Bahian side, are poor, hard, and dry; the rains last from the end of October till March, and the fertilizing showers of the dry season are wanting. The price is somewhat high, two square leagues can hardly be purchased for less than £2000. A little is done in the way of breeding horses and mules, black cattle, sheep and goats, pigs and poultry, especially turkeys. Salt and saltpetre, limestone and sugar with a saline taste, are supplied by the Riacho do Salitre: this stream rises about Pacuhy, receives the tributes of the Jacobina Nova and the Jacobina Velha, and feeds the São Francisco after a course of forty leagues. A place called the Brejo, distant about four leagues to the south-west, is the local "celleiro," or granary, and, as this is small, provisions must be imported from up stream. It produces in abundance pumpkins and water-melons, especially at the beginning of the rains; the orange is here small and green, like the wild variety, it does not find a proper climate, and below Boa Vista it ceases to grow; the limes are juiceless, and half pips. Cochineal is unimproved, and there is no tobacco, for which the nitrous soil is well adapted. I was strongly advised, even by a youth who had lately come up in three days from Boa Vista, to lay in a stock of beans and manioc, rice and maize, as nothing was to be found in the starving settlements between Joazeiro and the Great Rapids. The precaution was taken "on the chance," but, as will be seen, it was quite unnecessary; moreover, it gave considerable trouble. Not a pound of husked rice was to be bought, the price was high, and the

article was coarse and red, fit only for a Kruboy.* Fish was abundant, and the Surubim, the salmon of the river, was hawked about by boys. Some complain that the increased flow of the stream, the rocky bottom, and the broken waters, are bad breeding conditions, and that the São Francisco is no longer a Mississippi, a father of fish. Others declare, and with truth, that fishermen, not fish, are wanting, that a net is never thrown in vain, and that the pools, bayous, and ypoeiras produce large shoals.

On the opposite or northern side is the Porto da Passagem do Joazeiro, of late called Petrolina de Pernambuco. It was a little chapel, N^a S^a de Tal, and half a dozen tiled houses fronting the stream, backed by a few huts, and a wave of ground higher and healthier than the right bank. The two are connected by a ferryboat which makes use of the "vent traversier," and carries twenty-five to thirty head of cattle. Each passenger pays per trip 0\$080, horse or mule 0\$400 (the load and trooper going free), and

* In the following list of prices it must be remembered that here the alqueire is four times larger than that of Bahia :—

1 alqueire beans (in 1852, 11\$500) = 20\$000.

1 alqueire farinha of manioc (6\$400) = 12\$000.

1 alqueire salt (12\$000) = 24\$000.

1 arroba (32 lbs.) of lard (7\$680) = 10\$000. This was the price which I paid, but it was nearly 1s. 3d. too much.

1 arroba wheaten flour (0\$240) = 14\$000 to 16\$000.

1 arroba biscuit (10\$000) = 16\$000.

1 arroba country wax (5\$000) = 6\$400. Honey is also cheap and plentiful.

1 arroba Carnalúba wax (5\$000). It is not made now.

1 arroba Carne Seca (3\$400) = 6\$000 to 7\$000.

1 arroba cotton uncleaned (2\$560) = 2\$000.

1 arroba cotton, cleaned = 8\$000.

1 arroba sugar (7\$000) = 4\$000 to 5\$000.

1 lb. steel = 0\$400.

1 lb. bar lead or shot = 0\$400.

1 lb. saltpetre = 0\$080.

1 lb. sulphur = 0\$320.

1 vara (yard of 43 inches) cotton cloth (0\$320) = 0\$400.

1 vara twist tobacco = 0\$160.

1 sugar brick (rapadura) of Jannaria (0\$240) = 0\$160.

1 sugar brick (small and saltish) of the R. do Salitre = 0\$030.

Tin sheet (folha de Flandres) = 0\$240.

Plank, wooden (1\$600) = 2\$000.

1 bottle common Barcelona wine (0\$640) = 1\$000.

1 bottle port = 2\$500.

1 bottle vinegar (0\$320) = 0\$800.

1 bottle corn brandy (of Jacobina, poor) = 0\$200.

1 bottle corn brandy (S^{to} Amaro, the best) = 0\$500.

1 bottle Ricinus oil = 0\$240.

1 bottle sweet oil (1\$000) = 1\$600.

Per covado (cubit of 26½ inches) of Chita cotton cloth averages = 0\$280.

Raw hide of an ox or cow (1\$280) = 2\$800 to 3\$000.

Calf, according to size, from 0\$800.

Sheep or goat's skin = 0\$320.

black cattle 0\$300. Matters had changed little since 1852, when M. Halfeld rated the annual movement at 7500 to 8000 souls, 10,500 head of black cattle, and 1300 horses and mules, wild and tame, old and young, intended for the Bahian market.*

My introductory letter was duly sent to the Superior Commandant, Lieut.-Col. Antonio Luis Ferreira, who did not deign to take the slightest notice of it. I then called upon Sr. José Vieira, a young merchant whom we had met up stream: his store was in the Rua do Mourão, or western water street, fronted by a black wooden cross on a pedestal of brick and lime. Of those assembled there none could give me any local information, even the names of the streets. Fortunately I made acquaintance with the Capitão Antonio Ribeiro da Silva, junior, the son of a Portuguese, and born in the place: he had travelled in Europe, and he at once invited us to dinner and chat.

The Capitão spoke of a Gruta, which he described as having a descent to the mouth like the Mammoth Cave; it extends three to four miles, and is distant nineteen up the bed of the Riacho do Salitre. Here are old legends of silver mines near St^a Anna, and copper at the Fazenda da Carahyba, eighteen leagues to the east-south-east. Our host had found a diamantine formation, covering at least twenty square leagues, in the rich agricultural and coffee country, of which Jacobina Nova is the centre. He gave us some excellent "doce" of the sweet potato, which is here a red variety like beet-root, banded white. His garden contained fine vines four to five years old, trained to a tunnel-work, but almost able to support themselves. This is a grape-country, and nearly every house has its paneiral or arbour: the vines produce all the year round an "Uva durecina," which sells here for 0\$240, and at Bahia for 1\$000 per pound. Much has been written about the Brazil being capable to produce her own wine. This, I apprehend, will be hardly possible in those climates where the hot season is also that of the rains. The same bunch will contain ripe, half-ripe, and unripe berries, which make a good vinegar. Nor is there any cure for the evils endured by this

Non habilis Cyathis et inutilis uva Lycaeo.

On the other hand, where the wet weather begins with the northing

* The ferry dues are received by the Villa da Boa Vista, which we shall visit down stream.

of the sun, and where the summer of the southern hemisphere is dry and sunny, the grape, I believe, is fated to do good service.

My next visit was to Sr. Justino Nunes de Sento Sé, a native of the town whose name he bears: this gentleman introduced me to his wife and his fair daughters, who after three months' experience of Joazeiro, much preferred Bahia, their birth-place. The father had been chosen by H. E. the Councillor Manoel Pinto de Souza Dantas to superintend the steamer which was proposed, even in 1865, to plough the waters of the Upper São Francisco. Unhappily for the project, Sr. Dantas took the portfolio of agriculture and public works, whilst his successor, the Provincial President, was by no means earnest in carrying out the plans of a predecessor. Sr. Sento Sé complained much of private opposition. A Joazeiran proprietor, Lieut.-Col. Domingos Luis Ferreira, had offered for £1600 to receive the vessel from the hands of government at the Porto das Piranhas, the present terminus of steam navigation on the Lower São Francisco, to carry up the sections on horse and mule-back past the Great Rapids, and then to embark them on barcassas, or lighters. His friends resented the rejection of his proposal, and spread a report that the candidate preferred had wasted £6200, that the fragments of the "Presidente Dantas" were scattered about the Bahian road, and that an engineer sent from Rio de Janeiro to set up the machinery had, after four months' waiting in vain, returned in July, 1867.

Then the steamer, which the papers had made to reach Joazeiro, and which His Excellency expected to begin work not later than September, 1867, was, in fact, nowhere. Sr. Sento Sé appeared to be thoroughly tired of the business, and spoke of raising a private company for steam navigation of the São Francisco. It is lamentable to see a great thought thus hopelessly frittered away in detail by private jealousies and by petty individual interests. Much as I deprecate the employment of foreign engineers in this Empire, where natives can be found, there are cases when the appointment of a foreigner will not raise up against him a hundred enemies, as will assuredly happen to the native.

We were delayed at Joazeiro until the two men hired at Januaria agreed, for a consideration, to place me at Boa Vista: here the people have by no means the best name, and various tales are told about barquemen robbing their employers, and

leaving them "in the lurch." They drink, and they are dangerous: therefore the men below Boa Vista are always preferred to them. José Joaquim and Barboza, "Barba de Veneno," had always won my gratitude by keeping themselves below: not so the Menino, who at night had returned to the Eliza on all-fours, like one of the lower animals, whilst Agostinho, the slave, was successively drooping with "sea-sickness," and unpleasantly surly. It was a weary time, as are all those enforced halts near towns. The nigger boys splashed in the water around us, and the mulatto youth came to cheapen and wrangle about straw hats, gugglets, and orange conserve. We were anchored amongst the washer-women, who were grotesque objects. One defended her head with a calabash, forcibly reminding me of that Triton song by Camoens (vi. 17): he was very ugly,

And for a casque upon his head he wore
The crusty spoils whilome a lobster bore.

In no part of the Brazil had I seen such an excessive display of shoulder: it exceeded the high mode of the Bahian Quitandeira, or black market woman, and it was truly remarkable after leaving the Province of Minas Geraes.

When tired of shoulders I visited the Ilha do Fogo, that small St. Michael's Mount, which we had passed hard above the Villa. It is an interesting feature, and the first of its kind yet seen, a composite river-island of rock terminating down stream in a long sandspit: the level parts were bush-clad, and a splendid Jatobá tree added not a little to their beauty. The northern arm into which it divides the São Francisco is, though navigable, dangerous with sunken rocks: hence probably Joazeiro preferred the right bank.

We landed amongst the blocks and boulders of the western end. The material was a gray granite, coated in places with purplish glaze, like iron that had been exposed to great heat: there were various masses of amygdaloid and veins of quartz, but pyrites did not appear.* It was easy to scale the tower of broken slabs about eighty feet high; certain enterprising sightseers had cut a path through the Niacambíra Bromelias, and had cleared off the Quipá Cactus. The summit commanded an extensive view of

* M. Halfeld describes the rock as quartz-veined granite: he found talc, manganese, and pyrites.

the São Francisco, a panorama of plain studded with low hills and dwarf ranges, offsets from the great walls of the riverine valley. East of the Fire-island main heap are two minor outcrops of the same rock, emerging from the thorny brush.

Joazeiro, I have said, is the proposed terminus of two Anglo-Brazilian Railways, that of Pernambuco and its junior the Bahia. Both were offsprings of the law of June 26, 1852, decreeing the concession of the line D. Pedro II. A guarantee of seven per cent. (five from the Imperial and two from the Provincial Governments) easily opened the purses of the shareholders. The reports of a rich and fertile interior, waiting only to be tapped by the Rail, determined the direction from the coast towards the Rio de São Francisco. Works were undertaken with a recklessness characteristic of great expectations. No general commission was organised to arrange the system upon which the great trunk road should proceed. A staff should have been appointed to make serious preliminary studies of the ground: this was neglected, and in the Brazil I have seen calculations for cuttings and embankments based upon a flying survey, whose levels were taken with the Sympiesometer. The result was what might be expected. The lines were laid out and built with almost every conceivable defect; they began at the wrong places, and they ran in the wrong directions; they were highly finished where they could have been made rough; they were dear where they should have been cheap; they had tunnels where the land was to be bought for a song. Thus the estimates were shamefully exceeded, and the seven per cent. became a snare and a delusion. The branch roads and feeding lines were not made: hence complaints and recriminations; the shareholders were losers, and the Government found itself saddled indefinitely with a huge debt, which it had calculated to pay off by the increased yield of the railways. Here, and here only, has the steam-horse assisted in uncivilizing the country by unsettling the communications which before were bad enough, and are now worse. Here, and here only, the mule can successfully contend against machinery: anti-Brazilian writers compare the progress of the country with that of the sloth, and truly at this rate it will be behind even Canada. Finally both these main trunks stopped short within a few miles of the Provincial capitals, where they had commenced and built their last stations, either in the virgin forest or in Campo ground,

little more productive than the favoured regions about Suez. At this moment railway enterprise in the Brazil may be said to stand still, and the Empire has suffered in the money market of Europe for a maladministration whose blame attaches chiefly to foreigners.

On the other hand, steamer navigation has prospered, and from Joazeiro downwards, we shall find that the weekly arrival of a little craft at the Porto das Piranhas* has galvanized the whole country as far as Crato in Ceará, a radius of 270 miles. Leather-clad men, who would never have left their homes, are now loading their animals with cotton, and are making purchases of which a few months before they would not have dreamed. In 1852 M. Halfeld remarked, "by reason of the great rapids on the São Francisco, both above and below the town of Cabrobó, fluvial traffic has been little developed." The description is obsolete in 1867, showing how vitalizing, even in these thinly populated regions, is the effect of improved communication. I hope to see the Bahia Steam Navigation Company (Limited) † increase her

* The first commercial steamer left Penedo, August 3, 1867, and reached Porto das Piranhas, August 5, 1867.

† This Company was organized in 1861. Its Articles of Association were approved by the Imperial Government in 1862, and it dates its proceedings as an English Company from June of that year. The capital is £160,000, of which about £150,000 has been paid up. The subsidies granted by the Imperial and Provincial Governments amount to £20,000 per annum, equivalent to one-eighth, or 12½ per cent. on the whole capital. The contract actually in force extends till 1872, and an Imperial Decree (No. 1232 of 1864) authorises the Government at the end of the above period to revise and extend the convention and the subsidies for a term of ten years. The obligations of the Company comprise communication with the chief ports on the Brazilian sea-board, extending northwards from Bahia to Maceió, and south to Caravellas or São Jorge dos Ilhéos; likewise the internal navigation of the Reconcavo, from the provincial capital to the cities of Cachoeira, Santo Amaro, Nazareth, Valença, and Taperoa, touching at the intermediate villages; thirdly, the navigation of the Rio de São Francisco, from Penedo to the Porto das Piranhas; and, fourthly, the navigation of the Lakes Norte and Manguába, in the Province of Alagoas. The floating property is represented by the following sixteen steamers, six of which are employed in the coasting navigation, and ten in the internal, or bay and river navigation :—

1.	S. Salvador	registered tons,	280	; horse power,	150
	Dantas	"	295	"	165
	Gonçalves Martins	"	298	"	126
	Sinimbú	"	312	"	126
5.	Santa Cruz	"	178	"	103
	Cotinguiba	"	195	"	103
	São Francisco	"	153	"	60
	Dois de Julho	"	261	"	50
	Jequitaia	"	250	"	60
10.	Santo Antonio	"	153	"	40
	Boa Viagem	"	153	"	40
	Itaparica	"	62	"	30
	Lucy	"	30	"	12
	Victorina	"	3	"	3
15.	(building)	"	200	"	75
16.	„	"	200	"	75

small fleet of sixteen to fifty vessels. She has taken the right line, and with energy and economy she must prosper.

As regards fixed property, the Company possess at the city of Bahia workshops, &c., for the repair of the fleet, and suitable stores for materials and coals. At the city they have recently completed the new landing-piers and receiving-houses for cargo, and they have constructed suitable landing-places at all the Bay Ports.

This information was given to me by Mr. Hugh Wilson, of Bahia, the energetic and progress-loving Superintendent. I have only to hope that his views will be adopted with its usual liberality by the Imperial Government, and that a tramway will presently connect the Porto das Piranhas with Joazeiro. Evidently this should have been the step first taken ; but should it be the last, we shall not complain.

CHAPTER XXVI.

FROM THE VILLA DO JOAZEIRO TO THE VILLA DA BOA VISTA.

TENTH TRAVESSIA,* 22 LEAGUES.

GENERAL REMARKS ON THIS TRAVESSIA, THE GARDEN OF THE SAO FRANCISCO.
—THE “TWO BROTHERS.”—THE CACHOEIRA DO JENIPAPO.—THE VILLA DA BOA MORTE, ANCIENTLY CAPIM GROSSO.—ITS ORIGIN.—ITS SCANTY CIVILITY.—RESUME WORK.—PRETTY APPROACH TO THE VILLA DA BOA VISTA.
—THE CANAL PROPOSED.—ALSO ANOTHER CANAL.—ARRIVE AT THE VILLA.
—THE COMMANDANT SUPERIOR—RECRUITING OF THE CONSERVATIVES.—ORIGIN OF THE VILLA—ITS PRESENT STATE DESCRIBED.—ENGAGED A NEW CREW, THE PILOT MANOEL CYPRIANO AND THE PADDLE “CAPTAIN SOFT.”
—MADE NEW PADDLES FOR THE RAPIDS.

Terra feliz, tu es da Natureza
A filha mais mimosa ; ella sorrindo
N’ um enlevo de amor te encheu d’encantos.

(*Poesias B. J. da Silva Guimarães*).

WE now enter a country which has left upon me the most pleasant impressions. Between Joazeiro and Boa Vista is the lower garden of the São Francisco, perhaps a finer tract than that about the Pirapora. The stream becomes swift, averaging four knots an hour, and though the sunken rocks present some risk, the travelling is much more pleasant, and the swirling and boiling of the water show that it has a considerable depth. On both sides there are farms and fields, each with its scarecrow frightening the capivaras and the robber birds, and there is no drought, though the air is intensely dry, the effect of evaporation. The dew is heavy, and the dry winds carry off the watery particles to form rains on the higher bed. The sloping banks are all green with manioc, maize, beans and wild grasses. The valley is studded with pyramidal hills, of which as many as five are sometimes in sight ; they are backed by waves of ground covered with thick or thin bush ; these Catingas Altas † will con-

* Formerly this Travessia extended twenty-nine leagues to the extinct town of Santa Maria (276th league), the terminus of barca navigation down stream ; it is now reduced to Boa Vista (269th league).

During the floods boats run down from Joazeiro to Boa Vista in twenty-four hours.

† The term is applied to the ground, as well as to its vegetation.

tinue till Varzêa Redonda. The Cajueiro and the Cajú Rasteiro are now common;* the principal growths are the cactuses, the gigantic Mandracuru, the Facheiro (faxeiro), whose dry wood serves for torches; the echino-cactus, Cabeça or Corôa de Frade; the Xique-Xique, or cylindrical plant, the common flat band nopal, and the dwarf Quipá. The bush or undergrowth is chiefly the Araça (psidium), and the Tinguí (*Magonia glabrata*, St. Hilaire). The larger growths are the Páo Pereira (*Aspidospermum*); the leguminous Carahyba, whose large green bitter pods are loved by goats and deer; the leguminous Catinga de Porco† whose leaf resembles the Barbatimão acacia; the Salgueiro,‡ and the Páo Preto, whose black trunk appears scorched with fire.§ In many parts fuel is wanting near the stream. We have left behind us the diamantine “*formação*” and the iron fields; here we find pyrites, traces of gold and large outcrops of limestone. The winds are furious at the present season, but they will have no power below Boa Vista; here the trees and grasses are bent up stream by their persistency and power. We were told to expect windy nights, and hot still days; we shall have wind night and day, cold and furious by night, hot and furious by day. The mornings are cold and cloudy, but the sun begins to sting at 10—11 A.M. and lasts till late in the afternoon.

Friday, October 25, 1867.—We managed to set out at 11 A.M., and dropped past Joazeiro Velho on the right bank; the place has become superannuated since its desertion by the channel. The trade wind was moderate, but tourbillons of sand and dust-devils (*Redemoinhos*), coursing over the broad river-plain, made us furl the awning. Of the five hills in sight only one block, white and bushy, approached the river, which the many islands, sand-bays, and islets divided into sundry independent streams, never less than two. Red and purple glazed rocks scattered in the bed, again gave the familiar sound of the Cachoeira.|| We grounded once by hugging too fondly the left shore, and for a few

* The tree when I went down the river was not yet in fruit.

† It has a powerful smell, which, however, hardly justifies the harsh name “pig-stink.”

‡ It produces a useless fruit: the strong hard wood is applied to the “*Cavernas*,” or ribs of barcas.

§ The wax exuded by the bark makes candles which are exceedingly hard, and if a melted drop fall upon the hand, it

removes the skin.

|| M. Halfeld would remove them at an expense of £340 and £500, and in three others £680, £170 and £720, or a total of £2,410 in twenty miles. This may be done in due course of time; at present it is useless to expend one milreis. A good pilot can steer clear of the difficulties, and we went down safely with men who, if they ever knew this part of the river, had quite forgotten it.

minutes we hung poised upon the crest of a sunken rock which gave no sign. The banks were green with the spiky Capim Cabelludo, which is planted for dry season fodder; if not drowned by the floods it lasts, they told me, twenty years.

After sunset we anchored off the huts of Mato Grosso on the right bank. Here the course of the São Francisco is north with a very little easting, and the bed is no longer so broad as above Joazeiro. Opposite us, or nearly due west, is a fine landmark, the Pico da Serra do Aricorý, or Ouricorý,* attached to a lumpy line, whose trend is north-west. Though distant five miles the features are clearly distinguishable.

October 26.—The crew, eager to advance, began work at 5 A.M., and we shot rapidly past the Ilha da Manisóva † and other unimportant features; we were, however, driven to anchor from 9 A.M. to 1.30 P.M. whilst the world was airing and warming. The third league showed us the Fazenda do Pontal; here on the right or southern bank a line of scattered cones drives the stream from north-east to south-east. Opposite it enters the Riacho do Pontal, ‡ and below it stretches the remarkably long island of the same name. Further down the Bahian side bears the little Arraial da Boa Vista and its chapel of N^a S^a dos Remedios. For many an hour we saw in front the peculiar Serrote dos dous Irmãos, twin pyramids with gentle, regular and equal slopes on both sides; their cliff facings of white stone were thrown out by the now greening “bush;” and, after sunset, a shadowy grey colour stole over them. When the gloaming began we sped by the Cachoeira da Missão, an unimportant break to starboard, and presently we landed on the Pernambuco bank, at a place called the Pontalina, opposite an islet of the same name. I had given a passage from Joazeiro to a young fellow whose home was here; three women came down to the landing-place and carried off, on their heads, with much coquettish recusancy, the few bricks of sugar and the dozen greybeards of gin which he had brought as

* Also written Aricori and Ouricori (the name of a palm): in the *Lingua Geral* the terminations “i” and “y” are equivalent and are used indifferently, as Tupi or Tupy, Guarani or Guarany.

† This is doubtless the Manacóba or large *Jatropha* of Gardner. Generally Manigóba is the *Scringa* or Caoutchouc-tree. The minor features are the Fazenda de Paulo Affonso and a few rocks at the Barra do Vieira, which do not require

removing.

‡ “Pontal,” like “Começo,” is applied to the head of an islet, especially when the point is bluff. The Riacho do Pontal comes from the Catingas Altas, and though much broken, it is ascended by canoes during the floods. My informants gave it a length of thirty leagues. Mr. Keith Johnston makes the “R. Pontal” drain the dividing ridge.

a stock in trade. They were wild-looking beings, their very small faces were set in a frame of hair, and their beady eyes peeped out from the profusion of unkempt, witch-like locks.

October 27.—Passing the Two Brothers we were driven to anchor at the *Começo da Cachoeira do Jenipapo*, a small break some eight miles above the main feature of that name. Delayed between 7 A.M. and 2 P.M., we saw at 3 P.M., on the Bahia side, the *Barra Grande* do Curaçá*; the mouth is about 230 feet broad, and the right jaw projects into the main artery a large dome of stone. The view up-stream discloses a pretty vista of lively verdure. About three miles below it is the *Cachoeira Grande do Jenipapo*, with houses on the right side and rocks dotting the stream; we found, however, a clean central way. Far to the north-east appeared a lumpy hill range with a brown, green and white-streaked surface; the bank to starboard showed, alternating with grey granitic schists, large snowy blocks of laminated limestone, whose scatters we repeatedly mistook for human habitations.† At the *Barrinha*, a little stream and village further down, two broken reefs of projecting rock run parallel with each other along the bed from south-west to north-east. The wind tossed us about fiercely, the current ran very fast, and we were nearly dashed against a hard head by the pilot. He complained of ague, attributing it to the rising and falling of the stream; the fact is, he was suffering from over coffee and *Jacúba*.

As the sun sank low we sighted from afar, on the right bank, a picturesque village, the *Villa do Senhor Bom Jesus da Boa Morte*, whose vulgar neighbours persist in calling it *Capim Grosso*—big grass—the old original name. Fronting to north-west and towards the stream, a white-washed and red-tiled church in the Bahian fashion, with pinnacles instead of towers, and a façade sparkling with imbedded fragments of glazed pottery, displayed itself upon the crest of a ground-wave. Along the river were two *Sobrados* and a line of white houses backed by brown huts. The field-fences extended to the water side, and on the sloping bank

* Mr. Keith Johnston ignores it, and I do not think that, despite its fine name, the stream can claim any importance.

† M. Halfeld (Rel. p. 147) says that the rock is white and ash-coloured, with black veins traversing the strata in wavy bands (*bichas onduladas*) “of primitive formation resembling marble, and as their

breadth is sufficient for the saw, they may serve for works of taste, tomb-stones, &c.” Those which I examined were an excellent building material.

These are the features which gave rise to the common local names for hills and mountains, “*Sobrado*” and “*Sobradinho*.”

were two tall shady trees* which looked gigantic by the side of the thorny shrubs. Half way up the range, and high and dry since many a day, was an old barca, there beached by the last floods.

We anchored in a sheltered place below the rock-pile fronting the church; here however the river is broken by two islands, the Ilha do Torres to the south and the Ilho do Giqui (Jequi) hard by the left bank. We had scarcely made fast, when a report spread that a steamer had arrived. Rushed down the bank a posse comitatus of notables, mostly "bodes" and "cabras," in black coats, paletots (a word which here becomes "pariatóca"), and white etceteras. Only one man approached whiteness; he was probably the Professor of First Letters, and he squatted, Hindu-like, upon a stone, washing his face with both hands, and towelling it with his pocket handkerchief. The disappointment caused by the "Ajójo" elicited peals of laughter, and the smallest jokes bawled in the loudest and coarsest of voices. I seemed to hear once more the organ of African Ugogo. Exceptionally in the Brazil all ignored the presence of strangers, and they made unpleasant remarks about the certainty of such a craft never reaching Varzêa Redonda. I have, however, been threatened with drowning ever since leaving Sabará. Presently, hearing that a bullock was to be slaughtered, all rushed away, eagerly as a flight of turkey-buzzards.

Capim Grosso, which deserves to be entitled Villa Grosseira, was, till 1853, an Arraial; it rose to township by the Suppression of Pambú (283rd league). The houses may now number 70 and the souls 350. The broad streets are not badly laid out, and the thoroughfare running parallel with the river is cumbered with hard talcose slate and quartz-banded granite, which will readily supply building material. The prison, crowded with recruits for the war, peering from behind its wooden grating, was guarded by four soldiers, and the Câmara was denoted by the papers pasted to the door. The church, of burnt brick upon a foundation of gneiss, was out of all proportion to what met the view. In the usual square we found a few shops, and an "Aula Publica Primeira." We then walked along the deep, sandy path to the little cemetery and its shed-chapel behind the settlement. Hereabouts began the thorny Catingas Altas, where, however,

* They are called by the people "Moquem;" this is all that I could learn about them.

cotton seemed to flourish. The ground was strewed with pebbles and quartz-blocks of all sizes and colours, and the stone appeared to be auriferous. This place commands a fine view of the Serra do Roncador on the other side, where the wind is said to "snore" furiously. About a league and a half to the east is the Serra da Capivara, a long broken lump, which all declare to contain gold, although the metal has never been worked. Hence, probably, the auriferous pebbles.

Capim Grosso is the wildest place that we have yet seen; it did not show a trace of hospitality, or even of civility. Yet the people seemed tolerably "well to do." Many of them were on horseback, the saddles were made "country fashion," with strong cruppers and poytrels for riding up and down hill. The Caipiras wore, for protection against the sun, ugly "Sombreiros," and the swells cocked up one side of the broad brim, and the flap fastened by a large metal button made a three-cornered hat. These "Chapéos de Couro" are of goat, sheep or deerskin; the latter is the best, but any will serve, and they look like the "babool-stained" leathers of Western India. The women greatly outnumbered the men. We had inadvertently made fast near their bathing-ground; after dark they disported themselves in the water all around us, and debated, giggling, about the advisability of doffing the innermost garment. The site of Bom Jesus da Boa Morte is nature-favoured, but this was the only merit that we recognised in the place. I hope that the next travellers may be justified in giving a better account of it.

October 28.—The Januaria men here found relatives, and this delayed us till 6 A.M. After about two and a half leagues we came to a break, the Cachoeira das Carahybas; the river had again risen, the water had become exceedingly clear, and we easily found the safe line near the natural stone jetty on the right. The rains at this point are expected soon to break; the weather, however, has been dry since September when there was a short and copious fall.* On the left was the Serra do Curral Novo, remarkable for its rounded summits, platform and high demi-pique saddle-back. The lands on both sides of the stream were of exceeding fertility, presenting a most amene and riant appearance. At the Fazenda de Goiaz, a neat tiled and whitewashed house, the river began to turn from its northerly course to due west-

* Here called "Manga," or "repiquete de Chuva."

east. On the left bank at some distance appeared the Pedra Branca, a wave of bushy highland with a block of white limestone conspicuous upon its flank. Below it was a brother formation, the Morro da Boa Vista,* apparently two hills, but really three lumps disposed in a triangle with the base towards the stream. The nearer rise was capped with white near the stream; the further was thinly clad with Catingas Altas, like a head becoming bald. At the south-south-west of the latter rose the Villa da Boa Vista, our destination.

On the left, and about half a league above the town, we passed the Ilha do Icó.† The bank, a “baixada,” or low land, is broken by the Barra Grande da Boa Vista. Here M. Halfeld (Rel. 149—150) would begin the great canal proposed by Dr. Marcos Antonio de Macedo,‡ and other “educated men.” The waters of the São Francisco are to be drained through a channel to the Riacho dos Porcos which falls into the Riacho Salgado, an affluent of the Jaguaribe River, traversing oriental Ceará from south-south-west to north-north-east. It is a “gigantic project:” it would effectually lay the horrible plague of famine, and awake from their profound lethargy the people of inner Ceará and their neighbours of the Parahyba and Rio Grande do Norte provinces. Unfortunately, at a distance of some forty leagues, the line is cut by the Serra do Araripe, the dividing line between Ceará and Pernambuco. M. Halfeld highly approves of the idea if a pass (baixada) can be found through the range. The people of Boa Vista had never heard of Dr. Marcos or of his canal, and when I read out to them the Relatorio, they laughed. The projector still lives, it is said, at Crato, in his native province of Ceará, which should be truly grateful to him for his good intentions. Even were the canal to fail, the strong current of currency which would be generated even by the attempt would doubtless bear fruit.

As I am speaking of canals, it is as well to say that others have been proposed. Perhaps the boldest idea is that which

* Aliàs “Dos Dous Irmãos,” although there are three: the people ignore this name.

† The Icó or Yeó (*Colicodendron Icó*), which gives its name to a city on the Jaguaribe River of Ceará, and which will become common on the São Francisco, is a shrubby tree with an edible fruit, the latter resembling the common Ameixa or

yellow plum of the Brazil, where it has long been naturalised. The leaves are injurious to cattle, producing inflammation of the intestines and of the kidneys. The System refers to kitchen salt and castor oil as remedies.

‡ This name is mentioned by Gardner: I do not know if it be the same person.

owes its origin to Lieut. Eduard José de Moraes. This officer was apparently encouraged by "M. Emmerly's" report on the Hudson River and the Lake Champlain Canal, and by the brilliant picture of prosperity which M. Michel Chevalier portrays as the result of canalisation in the United States. He would simply take the waters of the Rio Preto, the main affluent of the Rio Grande,* and throw them into the Paranaguá, or Parnaguá lake, near the city of that name on the headwaters of the Gurgeia † River, the great central affluent of the Northern Paranyba. The distance between the streams is only twenty leagues, which, it is reported, might be reduced to fifteen; but unfortunately the dividing line bars the way. This difficulty is most naïvely alluded to, ‡ and it is confessed that "le Rio-Gurgeia n'ait pas encore été exploré." "Un inconvénient (!) se présente cependant dans le tracé de ce canal, c'est l'existence d'une chaîne de montagnes entre la vallée du San Francisco et celle du Parnahiba, et qui a été pour cette raison appelée das Vertentes § par le Baron d'Eschwege, qui la trouve la moins élevée de tous les autres systèmes de montagnes du Brésil. Il est donc naturel de penser qu'une partie de ce canal pourrait être souterraine, cependant rien ne vient prouver ce fait puisqu'une reconnaissance n'a pas encore été faite dans ce sens; peut-être existe-t-il une gorge, une dépression où l'on pourra le faire passer même à ciel ouvert." And to attempt such chimeras as these, the author would tax the English gold-mining companies in the Brazil, which have never yet been able to support the smallest impost.

Compelled to cross from the right bank, through a little break above the town, we were nearly upset by the violence of the "raffales." We succeeded, however, in making fast behind a rocky projection, and I sent without delay my introductory letter to the Commandante Superior Sr. Manoel Jacomi Bezerra de Carvalho. He at once called upon us and undertook to find a pilot and paddle-man. We talked of the railroad projected from this point to the Porto das Piranhas, thereby defeating all

* See chapter 21.

† In Mr. Keith Johnston, "Gurgeia R."

‡ Rapport, &c., p. 29.

§ The "Serra das Vertentes" is some 1260 miles to the south: we passed it at

Alagôa Dourada. The Rio Preto is supposed to arise in the Serra dos Pyrenéos, which M. Gerber and others extend from the headwaters of the Tocantins to the western valley of the São Francisco.

the Rapids; our visitor declared that the line was sandy and without hills, whilst its tortuous length can be reduced from seventy to sixty leagues. Neither he nor any of his friends had seen the neighbouring Niagara; they have often when riding down to the port passed it within a few miles. The latest newspapers dated from early September, and yet we are here only 200 miles from steamer navigation. The Commandante presently left us in a prodigious hurry, having to superintend the ironing of ten whom he called twenty recruits. They were sent to headquarters at Tacaratú, and we met the returning escort of fourteen muskets who had escorted them. They were wild-looking fellows, servile as well as free, and only the chief man had a horse; the dress was old-fashioned shirts and tight smalls of strong homespun cotton, leather hats, waistcoats and sandals. In the evening I saw a wretched "Conservador" pursued through the bush by mounted men who presently captured him for the war. No wonder that these places look like the ruins which the slave wars have made on the Lower Congo.

The Fazenda da Boa Vista, some five leagues down-stream, and belonging to the Commandante's grandfather, José de Carvalho Brandão, was originally an Aldêa, or settlement of Indians, and the head-quarter village of these parts. Presently a church was here built, and the huts gathering round it took the name of "Arraial da Igreja Nova," which is still preserved by the riverines. In 1838 it became the Villa da Boa Vista, the head of a Comarca, and the residence of a Vigario, a Juiz de Direito, a Juiz Municipal, and other requisites for self-rule. Its two freguezias, Santa Maria da Boa Vista, and the Senhor Bom Jesus da Igreja in the Povoação da Cachoeira do Roberto on the left bank of the river, number 6000 souls, an estimate founded upon the fact that a single parish has 1000 voters.* The town may contain eighty-five houses, and, at festivals, 500 inhabitants. They support themselves by breeding cattle, and agriculture, and they want but little here below; we found fresh meat for sale, but absolutely nothing else, not even a water-melon. Many spoke to us of the Serra Talhada, distant some fourteen leagues from the

* A rough but ready way of estimating the population in these outstations is by the number of voters, which every one knows. In some parts a tax is paid upon

doors and windows, but this again leads to errors in counting roofs, or as households are still termed in wigwam phraseology, "fires."

left bank. It is said to contain alum and saltpetre, but not a single specimen was to be procured. One man brought me a match-box full of iron pyrites, which being bright and brassy was for sale as gold: it is said to come from the western country.

The town has, as may be expected, little to show. We visited the natural pier at the western end which fronts south-west and runs back to the north-east. The substance is talcose slate, containing much quartz distinctly stratified, with cleavage lines trending from east-south-east to west-north-west, or nearly perpendicular to the direction of the beds. The harder parts can supply large blocks ready cut for building; in places it is soft and is worn down by the footpath which descends it in steps. Further to the west large fragments have slipped into the stream. At the eastern end there is another outcrop with strike to the south-east and dip north-west 35° ; and in parts it is spread without regularity over the steep bank of stone, sand, and stone dust. It is mostly banded with white quartz, and has embedded lines of amygdaloid. Near the stream its surface is revetted with a coat of the darkest chocolate, the usual ferruginous glazing; here, however, iron is not found, and must be brought from down-stream. The highest floods, even those of 1857 and 1865, the worst on record, did not extend half-way up the pier. The general belief is, that the inundations are diminishing, and with them the fevers.

We visited the church of N^a S^a da Conceição, a typical shape, tall, narrow like the people; its only charm is its site, a rocky platform forming the highest ground in the settlement, and fronting up-stream. A whitewashed cemetery appears to the north or inland, separated by a depression, into which the floods enter without, however, insulating the settlement. South of the church is the town showing a single row, the Rua da beira do Rio. With the usual unwisdom here customary, the people have fronted their houses towards the glaring temple and the hot stony hill, whilst their back-yard compounds and plots of pomegranates and flowers enjoy the charming view, and the breezes floating up and down stream. Looking south the Serras da Capivara and the Curral Novo break the horizon, and the broad river, with rocks above surface and rocks below water, serpentine through its subject valley. To the south-east are the Serras do

Piriquito and do Estevão ; of the four pyramids one is remarkably acute-angular, whilst further east three knobs denote the Serra dos Grós. There are no glass windows even in the richest tenements, and the jail, at the eastern end, is a house like the other houses.

Boa Vista is the terminus of barque-navigation ; at this season only ajôjos and canoes go to Varzêa Redonda. Here I dismissed, with an additional gratuity for extra service, the pilot José Joaquim de Santa and Manoel Felipe Barboza, aliàs das Moças, aliàs Barba de Veneno, and of late usually known for shortness as "Manoel Diabo." The latter, having quarrelled with an angry father, had fled his family, settled a few leagues down-stream, and had not seen it for fourteen years. He contented himself with writing a letter from Boa Vista, and he set out contentedly with his friend in a small canoe which will take at least a month to make Januaria. We separated well satisfied, I hope, with one another.

There was no difficulty in finding men.* The Commandante directed the pilot Manoel Cypriano to hold himself in readiness : the tariff is 25 \$ 000—not bad for five days' work in these regions, and the new man presently came to see us. He was a dark senior, dating from 1817, but looking at least sixty-five ; he declares that his premature old age has been brought on by a fast life, and that he has long passed the time when men begin to die. He has a queer dry humour, he delights in chaffing the people upon the banks, he twangs the guitar, he takes snuff as most boatmen do, but requires a snuff-pocket like our grandfathers, and he has a private bottle of country rum wrapped up carefully as if it were a baby. He never works except when half seas over, and I should fear to trust him when dead sober ; he is slow to excess, taking five minutes to don his coat and to slip his feet into his ragged slippers. Yet he is the only real pilot that I saw upon the river, he knows it thoroughly, he *will* be master on board, and he slangs a recusant paddle with the unction of an Oxford coxswain—in my day. Certainly no beauty was M. C., but he was stout-hearted and true. We soon learned to confide in his nerve, force and precision. There was

* M. Halfeld (Rel. p. 61) says that here it is hard to find watermen for rafts and canoes, on account of the Rapids. The

sole obstacle is the extreme laziness of the people. It is, however, only fair to confess that I lost but a single day.

something more interesting even than beauty in his danger-look, when, working his paddle like the tail-fin of a monstrous fish and firmly planted in the stern canoe of the rocking and tossing raft, he bent slightly forwards, steadily eyeing with straining glance the grim wall upon which we were dashing at the rate of twenty knots an hour, and, by a few ingenious strokes of the helm at the exact moment, brought round the bows and almost grazed the reef.

I gave Manoel Cypriano *carte blanche* to choose his oarsmen, and this was a prime mistake. Like almost all his countrymen, he had a certain amiable defect, a constitutional inability to say "No," which is often worse than a moral incapacity to use "Yes." Thus when he was set at in due form by one José Alves Marianno, he objected faintly, he held with him long palavers lying on the bank, and he ended by engaging him. All this time he knew the man to be a noted skulk, whose nickname on the river was Capitão Molle—Captain Soft—and whom no one would engage.

Marianno is, he tells us, a son of Petrolina, by no means a good locality. His immense curly head-mop of jetty colour, proves an African maternity, and the legal saying "*partus sequitur ventrem*" is true in more ways than one. He sings well, he has an immense repertoire, and, as a *repentista*, he is known to local fame. Ergo, I presume, he has taken the poetical and Arcadian name Mangericão (*Ocimum basilicum*) which he pronounces "Majelicão," and which soon becomes Manjar de Cão—dog's meat. He is hopeless, he drinks like a whirlpool, he eats like an ogre, he pretends to faint if pushed to work, and, if undue persistency be applied, he loses some of the tackle. He loves to "put on a spurt" where the stream is swiftest, so as to make a bump fatal: in still water he lolls back, snuffs, chats, chaffs, or chaunts. The worst is that I cannot be seriously angry with the rascal; he is abominably good-tempered, and he seems to look upon himself as the greatest fun in the world. Yet it was a relief when he received his 16\$000 and showed us his back.

The next day was a forced halt. The *Escrivão* of orphans, Sr. Felipe Benicio Sà e Lira, kindly allowed me the use of his house and his desk, which made the hours move more nimbly than they otherwise would. The wind blew strong and contrary.

The pilot had paddled away to his house down-stream, and was laying in small stores. We wanted large paddles; yesterday the only carpenter in the place had been engaged in ironing the recruits, and till that important operation was concluded he could not go to the bush and cut down a Mandracurú-cactus. These paddles look something like action, rude and heavy, but strong and pliant: they are perfectly straight, five feet long, and with a leverage of 2: 1—the little paddles used up-stream are nearly equally divided, and the effect is like using a large kitchen-ladle. When the work was done, he asked about four times its worth, and he took the opportunity of offering for the Eliza 100\$000. Had he paid as he charged, he would have said 1:000\$000.

CHAPTER XXVII.

FROM THE VILLA DA BOA VISTA TO VARZÉA REDONDA.

ELEVENTH TRAVESSIA, 45 LEAGUES.*

THE RAPIDS AND THE SMOOTHS.

“Les Brésiliens avant la conquête de leur pays par les Européens étaient au degré le plus bas de la civilisation.”—*Prince Max*, ii. 396.

SECTION I.

THE GOOD RAPIDS TO CABROBÓ.

A LITTLE below Boa Vista, the river, after a short and tolerably clear northern sweep, returns to the eastern direction, and enters upon that Cordilheira of breaks and rapids which will last for some thirty leagues. Earth here begins to show her giant skeleton bare. The bed broadens in many places to a league, and is worn down to its granitic floor; it is a mass of islands and islets, all bearing names, of reefs and rocks sand-scoured, cut and channelled by the waters, which glaze them to a grisly black. As a rule, the bed is too winding for the winds to form high waves, but this is by no means always the case. The rocky quartzose highlands, disposed apparently without any system, approach the channel and throw across it broken walls of stone. The Cachoeiras offer some risk to those descending, but more during the ascent.† There are many and sundry triangles of water, and the old rule of the Rio das Velhas, namely, to make for the single apex, will hold good here; in some places we must get into broken water to avoid sunken stones, and sometimes we must run straight towards a rock, and rely upon helm and current to escape it.

* M. Halfeld, by some curious oversight (Rel. p. 6), makes this eleventh Travessia thirty-eight leagues, and reckons the distance from Santa Maria, instead of from Boa Vista. The pilots stretch the distance

to fifty-two leagues; namely, sixteen to Cabrobó, and thirty-six to Varzêa Redonda.

† The people declare that accidents never take place, but we shall find two wrecks *en route*.

The only really bad part will be passed on our sixth day ;* it has nine rapids, two whirlpools, and two shallows, which form, during the space of five leagues, obstructions as serious as the whole course of the Rio das Velhas. Here a committee of pilots could point out the best line, which might be cleaned, marked,† and rendered passable ; it would be far better, however, to abandon all this part of the stream, and to run a tramway to the Porto das Piranhas, distant 70—72 leagues along the channel.

The beauty of the banks still continues, and houses, farms, and fields extend down the whole way. Gold cascalho, talcose slate, and quartz, frequently appear on both sides. At this season the vegetation is much burned, and the finest trees are upon the comparatively damp islands. The nearly total absence of palms gives to the scene a look of the temperate regions. Agriculture and stock breeding are the main resources of the people, but where the stream is low sunk, they have no idea of the Persian wheel or the windmill. The banks, especially the right, are much broken by Alagadiços or swamps, and by Ypoeiras, which here take the Tupy name Igarapé, or Ygarapé. The influents, known by the bright green grass at the mouths, are mere nullahs, owing to the increased narrowness of the river valley ; at this season their short narrow courses are either dry or slow strings of pits and pools (Caçimbas and Poções), during the rains they roll terrible torrents.

We were told that during the windless nights a candle might be used naked ; this was the case only once. The Serras to the north-east, Araripe and Borborema, obstruct to a certain extent the thorough draught. The Trade changes with the direction of the stream, and at this season it invariably comes up-stream. In the morning we have catspaws, the wind blows strongly during the sunny hours, and woolpack gathers in the afternoon. There is an immense evaporation, causing a constant thirst, and crumbling tobacco to dust : the whole of this section is a laboratory that distils a copious stream for the higher river. The rains are mostly from the north, sometimes from the south ; showers, violent only in March and April, extend between November and January, further down they are fiercest in February and March.

* Between the 295th and the 300th league of M. Halfeld.

† “ The channels are so intricate that we find, at the bifurcations, bits of sail-cloth

hung on the bushes to guide the navigators on the route to Pará ” (Lieut. Herndon, p. 333).

We now enter the head-quarters of the extinct Jesuit missions, a land of ruins strange in a country so young; and we see with astonishment that more than a century ago the neighbourhood was much more advanced than it is at present. The company, it will be remembered, was denaturalised, and departed with confiscation of property from the Portuguese dominions by the celebrated law of September 3, 1759. The Jesuits—*abstraction faite de leurs institutions vraiment nuisibles, et du mal résultant de leur domination*—certainly taught their converts the civilisation of labour, and now the “Aldeãos,” or villaged Indians, have allowed their chapels to fall, and are fast relapsing into savagery. Finally, the place of the old Fathers has been but poorly filled by the Italian and other missionaries, who, of late years, have been thinly scattered amongst these out-stations.

Wednesday, October 30, 1867.—With infinite trouble we managed to set out at 11 A.M. The old “Menino” was drunk, and well nigh incapable, and the new paddle, “Herb Basil,” after a very short spurt, began to droop in all save in the matter of singing. We dropped down between the left bank and the large Ilha Pequena; it shows fenced fields and thatched roofs on four poles, under which the shepherd shelters himself from the broiling sun. The sheep and goats are poor and lean at this season, and the owners ask 1\$000 for a bag of bones. On the bushy hills to the north are many sobrados, the usual house-like lumps of white limestone; below are scattered tiled huts, with here and there a large tenement, and the negroes are singing over the task of bush clearing. The banks are of fine quality; from the raft we see no bottom to the soil, and the tap-root strikes straight down.

This Roça channel, which we have taken to avoid the furious Cachoeira do Ferrete on the right hand, recalls to memory the Rio das Velhas below its confluence with the Paraúna stream. Presently we find on the right the Ilha da Missão (Nova), and its broken fane, one of the most southerly establishments of the Jesuits. It runs west-east, with a convexity to the north, and it is at least three and a half miles long. Sundry islets rise between it and the left bank; there are few breaks, but the many sunken rocks require careful piloting.* The Serrote do Páo Torto on the left

* Probably M. Halfeld surveyed this part of the stream when it was low. He talks of sundry Cachoeiras and “Cachópos” (shoals here called baixios, or bancos de Arça), which are mere “Corridas,” or

runs. Between the Ilha Pequena and the bank he places the Cachoeira do Fuzil, which, when I passed, can hardly be called a rapid.

gave us a taste of its quality; further down the Morros dos Grós, the three hillocks seen from Boa Vista, form a bluff, and approach the channel, which is compressed still more by the Serra do Estevão* on the other side. Both banks project natural piers of rock, which make the stream dark and swirling. Above the village "Os Grós" is a lump of stone; from this enchanted ground the barquemen have often heard the sound of the drum and the song, and tramp of crowds passing along. As the dangers of the bed increase, so will grow the belief in things unseen, till at last almost every bluff will have its own superstition.

At this point we turned from east to north, and passed between the left bank and the Ilha da Missão Velha. It contains a ruined chapel, Na Sa da Piedade, fronted by a cross; formerly it was populous and cultivated, now it is inhabited by only one Morador. "Captain Soft" determined that he had worked enough for that day—it was then 3 P.M.—and as I declined to put into the left bank, where he had friends, he neatly let slip the new paddle of Cactus, and managed, perforce, to effect a halt. It was useless to attempt the rapid which we heard roaring down-stream without all our gear perfect. I made him dive—he swam like a fish—but the current was strong, and the heavy timber was, doubtless, soon rolled far down-stream.

We halted on the left side, opposite the Missão Velha, and Manuel Cypriano set out at once to cut down a Mandracurú. Huts and clumps of noble Joazeiro and Quixaba trees gave the bank a pleasant aspect. The Zozó, or Pistia, formed bright beds in the water, especially at the mouths of creeks, and in places the tall Ubát was apparently planted by the people. Ledges some two feet square upon the water slopes, were laid out with onions, mint, that made excellent juleps, and the Merú, an edible tuber, with an Arum-like leaf; whilst the forks of low trees bore pots of lavender and flowers for the women's hair.

We were presently hailed by a familiar voice from above, and we recognised, despite certain borrowed plumes, the jolly face of "Manoel Diabo." His brothers, hearing that he had left Boa Vista without visiting his home, indignantly pursued him, and brought him back, nolentem volentem, to receive his mamma's blessing. He had "loaned" his friend the pilot's black coat and

* M. Halfeld calls it the Serra do Inhanhum, from the large island at the bend of the bed.

† This Saccharum is probably the "frecheira," or arrow-cane, of the Amazons River.

slippers, and he cast them both off when he led us about the "Fazenda." Here the bank is flat, and subject to an excess of droughts and floods. It is backed by a grey hill of talcose slate, veined with and passing into quartz below. The cotton shrub grows admirably, and each "foot" is said to produce thirty pounds; a little has been exported, but the old "lavrador" complained of a blight which had lately appeared: the plant probably wants new land. Most of the cottages here have looms, which are, however, superior in nothing to those of Unyamwezi. Cattle, sheep, and goats looked tolerably thriving, and the crew found abundance of birds; the flights of wild pigeons are described to resemble those of the United States. In the evening the fatted calf was killed, men and women complimented the truant in extempore verse, to which he replied with interest; and the drum was not silent till sunrise. We heard for the last time the Whip-poor-Will, his wrongs are taken up by another volatile, who ever complains, like the West African bush-dog, that the fire has gone out.*

October 31.—The old pilot worked hard at his carpentering under a shady tree, and even "Majelicão" bore a hand—I had deferred breakfast till the paddle was ready. At 10:30 A.M. we shook hands all round, and pushed off towards the spot whence the roaring came. This upper Cachoeira da Panella do Dourado, † the first below Boa Vista, has been descended by barcas even during the dry season, but it is perfectly capable of doing damage. We ran to the north of the Ilha da Missão Velha, and, poling up against a strong current, we passed between it and its northern neighbour, the Ilha do Serrote. Then turning poop on, we dashed down the usual channel, ‡ with the Angicos Island on the right, and the Cabras on the left, and we escaped without anything more serious than a long graze. It was a wild and haggard scene, a series of rivers within a river, a tortuous labyrinth of currents formed by seven large and a multitude of smaller rocks, through which the "eau sauvage" ran straight as an arrow. The broom-like shrub, Jarumataia, or Angari, brown below and green

* The cry is supposed to say, "Fogo 'pagou" (apagou).

† "The rapid of the pot-hole of the Dourado," a fish of this species having been caught in some "boil" by the first travellers. "Panella" signifies either a

pot-hole worked by the water in the rock, or a small whirlpool, a conical swirling depression in the surface.

‡ There is another channel to the right of the Ilha do Serrote, but it appeared to me very dangerous.

above, grew in clumps upon the islets and in the shallower waters, and heaps of drift-wood were thrown upon the convenient corners and ledges. The rocks, banded with snowy quartz, glazed like the pigeon's wing, ruled in straight lines by the several levels of the water, and in places bored into basins, appeared singularly characteristic. Further down, where the flood reposes in depths studded with foam, and where the current wheels round in lazy circles, we came to the cause of all this disturbance. On the left bank, without correspondence on the other side, a Serrote 80—90 feet high, and projecting to the north-east, sent a rib of rock clean across stream from north-west to south-east. The bluff showed strata of hard sandstone striking to the south-west, and split into brick-like cubes by the perpendicular cleavage; the face was lined with thick and thin ramifications of snowy white quartz,* which everywhere lay in fragments upon the surface. From the south it assumed a quoin shape, with a bushy hog'sback declining to the west.

Beyond the Ilha das Marréas we fell into the main stream. We had not seen it united since we coasted the Ilha Pequena, and now we found it flowing like Arar "incredibile lenitate." On the left of this reach, some four miles long, opened the mouth of the now dry Riacho do Jacaré † and its island down-stream. Below it the channel passes between the right bank and the Ilhota do Serrotinho, a spine of hard sandstone and white quartz raggedly covered with trees; the tail end has clearings and cultivation.

Presently we turned almost due east, and sighted ahead another mass of obstructions. They are caused by a number of stony cones on the right bank, and on the left by the Serra das Carahybas. This is a block and outliers of rock, with waves of bushy ground (Catingas Altas), which, contrary to rule in the Brazil, show no tree fringe on the top. At 1:30 P.M. we passed the Ilha Grande, where M. Halfeld gratefully inserts the residence of his pilot, Cyriaco, whose dexterity and courage he greatly praises. Curious tales are told of the old man, who seems to have inherited from his "Indian" ancestry a coolness of head, a clearness of vision, and a strength of arm and will quite exceptional. The boatmen

* M. Halfeld makes the bluff to consist of quartz, chlorite, mica, iron, and titanium.

† According to the pilot, it comes from As Queimadas, distant thirty leagues. M. Halfeld shows a very narrow embouchure.

In Mr. Keith Johnston it drains the eastern slopes of the western dividing ridge, heading near the sources of the Caniudé, the river of Oeiras in Piauhý.

declare that he knows every stone in the river, and that he can travel by night over the wildest dangers, especially when "tomado," or slightly "sprung." We shot down a rocky run between the Ilha Grande and the "Ilha de Villa da Santa Maria," formerly the end of the tenth and the beginning of the eleventh travessía. Two ajôjos, laden with salt bags, and raised hardly four inches above the water, were painfully poling up-stream.

We landed on the island to inspect a ruin which we had seen from afar. The soil is of immense fertility:* it bore cotton in small quantities; manioc wherever men had taken the trouble to plant it; the pinhão bravo, or poison croton-nut, which feeds the tenantry of the landshells; and fields of Icó trees, whose ancestors were probably planted here by the Jesuit Fathers. The people, with lank hair and broad yellow faces, showing indigenous blood, were better clad than those up-stream, and inhabited the same miserable huts. After a walk of a few hundred yards to the south-west, we came upon the temple fronting west towards the right bank and up-stream, where is the finest view. Monastery, church, and chapel were all a mere shell, and the latter bore inscribed upon the entrance

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1734.

The material was the finest brick, and the maximum size was two feet square. It was almost as durable as the ashlar of talcose slate with which it was mixed, and the chunam, probably shell lime, was of the best quality.† One of the belfries had fallen, and cactus grew upon the walls where roof and ceiling had been. The dimensions of the church were 100 × 25 feet. There were remnants of an arch under the throne (for the Host), and a line of stout, square piers forming an aisle or sacristy to the north. The lizard and the pigeon were the only inhabitants of the grim old ruin. I left it in sadness. There is something unpleasantly impressive about these transitory labours, upon which the lives of men have been

* Below Sta Maria the lands will become sandy, less light and rich.

† Hence the pilasters are called by M. Halfeld (Rel. 156) Columnas de Pedra. He remarks, "In the above-mentioned church

they still inter the defunct, but with so little piety, that the corpses, hardly covered with loose earth, exhale an insupportable fetor." The hint has been taken, and we had not to complain of the atmosphere.

wasted. The whole scene reminded me of the once renowned City of Wari (Warree) in the Kingdom of Benin.

Resuming our way, we ran down the Island of Santa Maria, and presently we came to another great stone-river coursing through the roots of the Serra do Orocó. These hills form a hollow crescent between the Serra das Carahybas and the water. The appearance is made peculiar by two knobs, which a curtain connects, and an outlier, the Upper Orocó proper,* approaches the left bank. The stream flowed like a sluice, and in the Cachoeira de São Pedro, where, despite the manful slanging of the pilot, the paddles preferred looking behind them to working, we struck heavily. We then threaded our way down the mid stream, though a land of islands.† On paper the channels look like the blue fissures of a glacier. The Ilha de São Miguel showed a deserted temple on a knob of ground. The Ilha de São Felis disclosed through its dense trees a whitewashed and tiled church, with belfry and two terminal towers; here the saint still resides.

As we emerged from this "belt" the water fell smooth as a metal plate; but the prospect was not less wild. On the right bank the Serra do Aracapá crouched like a sphinx with jubated neck, and from down-stream the head will seem distinctly traced. We then paddled between the Aracapá Island and the left bank, where enters the Riacho da Brisoda (Brigida).‡ The back water flows up the green mouth for about two leagues, and the rest of the bed at this season is a string of pools. We found good anchorage ground at the Porto do Aracapá, near the Fazenda of that name fronting the island. The people here breed horses, mules, and black cattle for the Cabrobó market, and a good ox is sold for 20\$000. It was a still, quiet evening, favourable for mosquitos. The hoary eastern clouds at nightfall threatening

* There is an Orocó debaixo on the left bank, about two miles down.

† To starboard were successively from west to east, the Ilha das Almas, do Juá, de S. Miguel, and da Piedade, with a mass of others, especially the Ilha Comprida, between them and the right bank. To port lay the Ilha de São Felis, which the pilot called "de São Pedro:" it had about midway a hillock (outeirinho), upon which the Chapel is built, nearly due north of the rising ground that supports the ruins of São

Miguel. Between S. Felis and the left bank is the Ilha da Tapéra; east of S. Felis is the Ilha do Aracapá, about four miles long. Its channel is much broken, and Cascalho appears upon its left bank. Here the broadest part of the river is nearly two (geographical) miles.

‡ Mr. Keith Johnston calls it "R. Bregido," and makes it drain, correctly, I believe, the southern slopes of the dividing range between Pernambuco and Ceará.

wind, and the jacaré splashed around us, while the flute and the song came loud from the shore.

Nov. 1.—We set out at 6 A.M., but the gale soon drove us to take refuge on the western side of the Aracapá Island, where we found a few huts belonging to moradores and fishers of the Trahíra. The low lands are often flooded, but there is a dorsum of higher ground to which the people can retire. I utilised the delay by engaging another paddle. The liveliness and the free, swift motion of the rapid after the smooths above were rather enjoyable than otherwise; but the process seemed somewhat a “tempting of Providence” in the now crazy Eliza, manned by a crew that would not work. The pilot, who knew the dangers better, was far more anxious than we were; and he presently returned with a barqueiro who, moyennant 10\$000, agreed to accompany us. Antonio was a stout, dark youth, with a heavy shoulder and muscular arms. He justified all the good things said about the people of the river below Joazeiro. Having received a small advance, he crossed the stream to fetch his sheepskin, and he took his paddle at 11.30 A.M., the old “Menino” being placed in the stern to amuse himself with his kitchen ladle.

We coursed down the end of the wild Aracapá Channel, passing an islet on the right and the Ilha do Taboleiro* to the left. Presently we shot through a gate formed by several rocks to port, and to starboard by an enormous block which had assumed the domed form into which granite masses are so often weathered. The colour was cinereous brown above, and below it was japanned to the semblance of a meteoric stone. Here, as elsewhere, the colouring matter does not penetrate the surface except through fissures. The coat varies but little in thickness, and when broken with a hammer the fragments show that the glaze is easily to be removed from the stone. I have before alluded to this phenomenon of coloration, which is common to both hemispheres.† A long series of observations is required before we can answer the question—“Does the river hold the oxides suspended like sand and other earthy substances, or are they found in a state of chemical solution?”

Beyond the gate with its grisly tower was a remanso, half boil,

* In M. Halfeld's map it is called the Ilha dos Bois.

† Chap. 15.

half dead water, which taxed the paddlers' arms. We then flew through a "violent rapid" formed by rocks between the eastern end of the Aracapá Island and the left bank. It is known by the descriptive name of *Desataca Calçoês*"—loosen your breeches—which is all that requires to be said of it. We then passed on the left bank the *Serrote da Ponta da Ilha da Assumpção*, where an ypoeira setting off to the north-east insulates a tract of ground three and a half leagues in length by five-eighths of a league in extreme breadth, more than double the width of the river water.* The *Serrote* is a lumpy, half-bald hill, with grey bush scattered over a whitish surface. The upper part is banded with scattered rocks of lighter tint running parallel with the bed, and tailing off down stream.

Perforce we took the main channel to the right or south of Assumption Island. The bank is mostly of sand based upon hard clay, and its "*Cascalho*" extends to the water edge. The low-lying land has *Catingas Altas*, where the people fly from the inundations. They remember in 1838 an exceptional flood, which rose 32 feet. The soil is said to be good; horses are bred in the island, and black cattle are said to have run wild. The mountains of the "*terra firma*" in front form a picture. The broken line of the *Serra do Milagre* contrasts with the lumpy mass of the *Serra da Bananeira*, upon which is said to be an "*Olho de Agua*;" and whilst the valley is bone-dry, its highlands are fed by rain. Far to the left two pyramids, regular as if cut, breed reminiscences of *Cheops* and *Cephren* in a certain valley of the Old World. Seen from the south-east, these hills lose their venerable appearance, and become a saddle-back, banal even as is its name, "*Serrote do Jacaré*." †

At 2 P.M. we entered the "spuming rapid" of *Cachauhy*, called *da Assumpção* to distinguish it from two others down stream. It is formed at the end of the *Ilha das Yaccas* and other complications by the *Serrote do Salgado*, a knob on the right bank. We went down the breaks where the water danced about the dots of rock,

* We shall ascend the easternmost part of this ypoeira to make *Cabrobó*. The direct route would be by the west, but at this season it is impassable. The principal rapids, going down the line, are: 1. *Bom Successo*; 2. *Cachauhy*; 3. *Tucutú*; 4. *Camaleão*; 5. *Urubú*; 6. *Cauam*, or *Cauan*; 7. *Fouce*; 8. *Catarina*; and 9.

The *Cachoeira do Gavião*, or *do Portão*. The latter, about half a league above the town, is described as a drop (*despenhador*), which can be passed only in the height of the floods.

† None of these names is given by M. Halfeld. The *Jacaré* appears to be his *Serra do Bendó*.

and safely accomplished the always delicate operation of crossing. We landed on the Island of Assumption to see the church, part of whose brickwork cumpers the shore in large masses. Nothing can save it. In 1852-54 it was 51 feet from the stream, which has now laid bare the southern side. It was built in 1830 by a citizen of Cabrobó, whose name is already forgotten; and the style as well as the material are a long way behind those of the Jesuits. It is to be hoped that the next traveller will find a little more attention given to the dead who are buried in the roofless enclosure.

The people collected to see us. Apparently inclined to be "saucy," they came with knives and small bird-bows and arrows. The old savages have all died off, and these are mostly a mixed breed, whose curly hair comes from Africa. The pure blood showed the well-known signs—big, round Kalmuk heads, flat Mongol faces, with broad and distinctly marked cheek-bones; oblique Chinese eyes, not unfrequently bridés, rather brown than black, and dwelling upon objects with a fixed gaze; dark and thick eyebrows; thin mustachios fringing the large mouths full of pointed teeth; and small beards, not covering the long, massive chins. The hair, brought low down over the forehead, was that of the Hindú, jetty and coarser than in the pure Caucasian. The nose had an abominable cachet of vulgarity, small and squat, with broad fleshy nostrils; in fact the feature was all that an Arab is not. They were well-made men, except that the trunk appeared somewhat too long and large for the legs, and the shoulders seemed to project horizontally just below the ears. The extremities showed that delicacy of size and form which has passed so remarkably into the Brazilian blood, and the skin was brown-yellow and ruddy only where exposed to the light and air.

A glance down the river from the tall bank discloses a grisly sight. There was the rich golden glow of the unclouded sun now slanting west, and many a silvery line of stream to suggest

Den Silberbach in goldne Ströme fiessen.

But a purple nimbus with a long grey lappet ahead threatened a gale of wind, and the richly tinted surface was fanged with murderous black stones. Here the Serrote da Lagôa Vermelha* runs

* Some call it the Serra do Milagre; others the Serra da Lagôa Dourada.

parallel with the right bank, and extends to it many a hill spur that reefs the stream. We easily traversed the bed, and stumbled through the Cachoeira da Pedra do Moleque, which breaks and boils right across; but at the next place we nearly came to grief.

Here the channel bends to the south-east, and dashes at a hill of stone and red clay. This Alto da Lagôa Dourada deflects it almost at right angles to the north-east. The water flows down hill, and we distinctly feel and see the angle formed by the raft platform. It is a violent torrent, pouring at a rate of 10 to 12 knots an hour over the rocks, swirling around them, and producing a complication of currents. In the runs there is a visible convexity of surface, the waters being heaped up as it were by the compression of the sides; and between the torrents are smooth boils which seem as though produced by underground springs. As we were entering the worst part, the strong east wind struck us, and in a minute we were thrown helpless upon a rock. I had taken the precaution to secure everything on board with ropes; had not this been done the surges which swept us as we heeled over would have cleared the deck. The pilot exerted himself desperately; the men kept their presence of mind, and the current, in whose power we were, beneficently sent the Eliza's head down stream, with no further injury but a scrape and graze. Enough for one day. The storm set in with fury. We managed to pass the Serrote da Lagôa Vermelha, and we anchored on the right bank, a little below the extinct town of Pambú.

This place of unintelligible name lies in a sack of the southern bank, and to the east of its unimportant Riacho. The site is a level at the feet of a thicket-clad ridge. The offset from the high wall to the south-west and the huts may number a maximum of thirty-five. The church, built and dedicated to Santo Antonio by a rich proprietor of Cabrobó, has indulged itself in an architectural eccentricity. The façades are double, whitewashed in the rear, brown clay in the front, and the effect is that of a man with two heads.

We passed the night at the Pedra do Bode, fronting Pambusinho Island, which was backed by the great Assumpção. A clean patch of sand was dotted with the Oití da Praia (*Pteragina odorata*, Mart.), a bush here considered useless; with the wild Icó, bending under the weight of its fruit; and with the Piranha, a scaly tree, which is green and lively above, whilst the lower parts

supply good dry firewood. Behind the beach rose the rocky and clayey hill, scattered over with quartz pebbles and red silex that resembled Rosso Antico. Passing through the bush we were attacked by a carrapato-tick, now a novelty, but none the more agreeable.

Nov. 2.—We ran down half a league to the tail of Pambusinho Islet, and then turned north-westwards into the Braço do Tucutú, the channel parting the mainland of Pernambuco from its subject, the Ilha da Assumpção. The latter is here kept in position by lines of rising ground, which face to the east and to the south. It was a delicious morning; the air was sweet and rain-washed, and the temperature that of Cairo in the cold season. How much would be paid for such a day at such a season upon the banks of the Thames! All creation looked its best, and the birds, unusually numerous, sang gaily in the bush, especially the tame and familiar red-headed songster of many names.* The ashen-grey maracanã † with the long cuneiform tail, was trooping from the forest to plunder whatever maize was to be found; and the fine large blue alcedo, ‡ a king amongst the kingfishers, crossed the stream with his “vol saccadé,” or sat upon the spray of pale-green glaucous verdure, looking out for what he could devour. The brown-black nimble plotus shot swiftly past us; the ichthyophagous crauna, § with dark plume and yellow beak shaped like the curlew, heavily flapped its long wings; and the Socó boi (*Ardea virescens*), so called from its bull-like bellow, looked twice at us before it would take the trouble to fly. Plundering seems here to be the fashion; even the pigs were necklaced with wooden triangles || to temper their love of manioc.

At this season the lower channel is clear; but during the height of the dries the Cachoeira da Boa Vista, alias da Boca do Braço, must be troublesome. The scenery was the usual pistia and hairy grass near the water, thin Mimosa growth higher up, and plantations upon the more elevated lands. Fish was plenti-

* It is called Cabeça Vermelho, Gallo Campina, and Tico-Tico Rei. The “Mellino” declared that he had sold for 10 \$ 000, at Rio de Janeiro, a pair (casal) of these birds, which are prized for their song.

† There are two species: *Psittacus Macavuanna* and *P. Guianensis* (Linn.).

‡ The people call it “Socó,” and de-

clare that it is fat and good eating.

§ The word is doubtless a corruption of “Guaraúna,” the “blackbird;” but it is pronounced as above, and many places upon the river are named from it. The people praise the flesh of this bird, after it has been fried in fat.

|| Locally called Canga (a yoke), or Cambão, a rustic Portuguese word.

ful, but the fishermen asked for it exorbitant prices. After four hours of very lazy poling we turned a corner from south-west to north-west, and came upon a clump of huts and a large compound wall facing towards the stream. A little above was the Porto, where a ferry plies between the island and the main. It is a broad green boat, with a short mast made fast to a bench stepped in front. Here we found the usual scene—women washing, men filling their “odres” (water-skins), and “borrachas” (leather bottle-bags, with wooden corks), and children splashing and catching the Piaba and the Piau. There were many horses, and the clean-limbed cattle fed upon the heaps of cotton-seed which had been thrown upon the banks. The other live objects were very lean pigs, prowling dogs, and poultry, which here includes turkeys and guinea-fowls.

Ascending the bank I found unexpectedly a large place without any of the sleepiness which had characterised Joazeiro and Boa Vista; the site is the mainland, in the Comarca of Boa Vista, Province of Pernambuco. At present it is a very dry land, the evaporation curls up the leaves of the orange tree, whilst the tall stout papaws seem to enjoy the temperature. And at times it is very wet; the floods enter the settlement, deluging its floor of sandy clay, and driving the people to the Catingas Altas, which we see scattered about. The main of the town, which may contain 125 houses and 700 souls, is formed of a large street, or rather square, running north to south, and containing the dismantled church of N^a S^a da Conceição. The houses are unusually low and massive, and they use shutters instead of glass windows, declaring that the road to Bahia is 140 leagues long, and that many of the stages want water. On the north of the settlement is the cemetery. The centre shows the new Matriz and inevitable cross, the work of a rich devotee, D. Brígide Maria das Virgens, whose husband built the now ruined fane on Assumption Island; both are in the same style, and this bears the date 1844. The interior is unfinished, showing a ceiling of naked rafters; there are, however, two pulpits, an organ loft, and carpets upon the floor, which show that it is in use. The Vigario recites mass every morning, and all the “respectables” of both sexes are “expected” to attend with a regularity which reminded me of the Mosque. Here and there are some decent shops, and I bought without difficulty meat and poultry, rice and water-

melons, salt and liquor. A tiled shed represented the market-place, which was crowded with leather-clad men from the interior, chaffering over their cotton bales* and broacas of rapadura and farinha, which will here be exchanged for wet and dry goods.

Here, after some months, I again saw "the Eagle zin" at work; the material comes from the inner highlands to the north, where yesterday's rain fell. This is a country of great fertility, and extends north to the Serra de Ararípe,† distant from Cabrobó thirty leagues. The range is described to be a succession of mounds of rich red clay, across which there is an easy road, whilst behind it is the stony Serra de Borborema, which inosculates with the Ibyapaba Range, separating Ceará from Piauhy. At the southern foot of the Ararípe is "Ixû," whose Villaship has been transferred to "Granito." On the northern counterslope are Crato and the Villa da Barra do Jardim. In this chalk range Dr. Gardner first found the Ichthyolites which now go by the name of "Penedo Stones." The nodular and rounded lumps of impure fawn-coloured limestone, when split down the middle, display the skeletons of the Mesosaurus, and fishes belonging to the recent Cretaceous epoch.‡ The people know of their existence, and some are still sent to the coast as curiosities.

We at once see the cause of prosperity at Cabrobó. The land road between the Villa da Boa Vista and the Varzêa Redonda runs by it, and is met by the highways from Ouricory, Crato, and the Cairirys§ to the north and north-east. The cotton bales are embarked on rafts or carried down by horses, to the Porto das Piranhas, distant along the river 55 leagues (165 miles). Then after long wandering they find a steamer which ships the exports

* The bales averaged five to six arrobas : they were unpressed, but made up neatly enough with "tie-tie."

† Gardner has described this chalk formation. The name Ararípe has been wholly omitted in Mr. Keith Johnston. Sr. Candido Mendes de Almeida has not forgotten it : he does not, however, show it backed by the Borborema, which, properly speaking, includes the two Cairirys. Of the latter more presently.

‡ Recent cretaceous fishes have been lately found by that excellent traveller, Mr. William Chandless, on the Rio Aquiry, an affluent of the Great Purús. Most of them, according to Prof. Agassiz, occur between S. lat. 10° to 11°, and W. long. (Gr.) 67° to 69°, in localities from 430 to

650 feet above sea-level. Here the latitude of Ararípe is about 7° south.

§ This name is locally applied to the country about Crato and Jardim. Cairiry, also written Cariry (Cairirys), Cariri, or Kiriri, was the name of a Tapuya tribe, the ancient possessors of Itaparica Island, in the Bay of S. Salvador. In 1699 a Jesuit missionary, P. Luis Vincencio Mariani, published at Lisbon his "Arte da Grammatica da Lingua Brasilica da Naçam Kiriri." Many places hereabouts bear the name of Cairirey; they were doubtless localities to which the old savages emigrated. There are two principal ranges, the Cairirys Novos, in the Province of Parahyba do Norte, and the Cairirys Velhos, in Pernambuco.

to Bahia. In 1852—54, I have said, all was languishing, where now we find life and energy. A good rolling road, but more especially a tramway, would give a mighty impulse to trade by facilitating it; and the many men relieved from the carrying trade would at once become producers.

I called upon the civil young Delegado Sr. Bertino Lopes de Araujo of Parahyba do Norte, who had married and settled in this place six years ago. During that time he did not remember a single assassination, although, of course, quarrels had taken place. Neither he nor any of his neighbours could explain the word “Cabrobó,” also written “Quebrobó;” all they knew was that the old Indian name had been given to a Fazenda which presently became a Villa. The Delegate warned me, as others had done, to make everything snug on board the Eliza, as we were soon to be in difficulties.

SECTION II.

THE BAD RAPIDS TO SURUBABÉ.

Nov. 3.—After manifold delays—the Delegate was writing letters for us, the pilot attended mass, and “Majelicão” hid himself in the nearest brothel—we ran down the narrow arm, safely passed its central “Camboinha,” and, after an hour’s work, sighted the Banco d’Arêa,* on the Bahian side below Pambú. At this point the Rio de São Francisco begins the great south-easterly trend, which it will keep, with a few insignificant variations, to the end of its journey. The north-eastern Vento Geral now becomes a side wind, and sometimes blows almost from behind. The sun is decidedly hot, clouds gather to the east and to the west, we see from afar symptoms of a “repiquete,” or violent shower, and we therefore expect a gale, if not a rain-storm.

On the left side a sandy islet hid from us the mouth of the Riacho da Terra Nova, or do Jequi (Giqui), a nullah of some importance.† Beyond it we entered the Passagem do Ybó, the

* It is a clump of huts above a large sand-bar or beach, known as the Corôa do Bom Jesus.

† It is said to head about 30 leagues from its mouth in the Araripe Range, near

the place called “Cairirys Novos.” Mr. Keith Johnston calls the north-eastern fork “R. Terra Nova,” and the north-western, “R. S. Domingos.”

narrowest part of the São Francisco, where people can talk from side to side. The formation is a deep gorge in the valley line, which, however, shows no especial features; the banks are sandy, the right is not flooded, whilst the left is swept, and a low rib of loose rock stands up in mid-stream. The water, at this season 95—100 feet deep, swirls in palpable domes, and foams in shallow “pots.” A little below the Fazenda do Ybó, and a point projecting from the right bank, the 770 feet of stream spread out to more than a mile. The total breadth of the river below the narrows is three-quarters of a league, but the greater part of it is occupied by the Ilha da Vargem, fronted by the main artery, and backed by its own little branch of the São Francisco. Well inhabited, and with fertile soil, this island, shaped like the letter **L**, with the angle pointing south-west, is one of the largest, each limb being about a league and a half long.

Easily passing the narrows, we ran along the left bank between it and the Ilha do Estreito.* This is the only line passable. Beyond this island the left bank projects a rounded point towards the concavity of the **L**, and fills the river with rocks and rapids; the heights are apparently limestone, and again we see along the brink iron conglomerate in dark ledges. At the apex begins the Cachauhy de Antonio Martins, the second of the name. The roar of this rapid is worse than its bite; the foul channel, however, is compressed on the right by the Ilha do Cachauhy, and further down by the high and sandy Ilha do Caruá.

We then crossed the river from west-north-west at the tail of the Ilha da Vargem, to the “Largo do Brandão” on the east-south-east, a long reach of deep smooth water which appeared a “Remanso” after the swift stream higher up. A gaunt island, the Ilha dos Brandoês,† here defends the bed from the rocks of the left bank, whilst the right bank protects us from the wind. Opposite the head of the island, and on the Bahian shore, is the mouth of the Riacho da Vargem, which is said to run twenty leagues from a height called the Tombador. Rice fields were on its borders, and boys were pelting the greedy birds with loud cries of “diabo.” At 4 P.M. the pilot said that we must anchor, as

* The Ilha da Boa Vista in M. Halfeld's maps.

† On the left bank are three Fazendas, called Brandão, probably from some family

that first settled here. At the Brandão do Meio there was a neat white house and a clump of cocoa-nut trees.

there is no safe ground amongst the Rapids, which will extend ten leagues down stream. This is by no means the case, but Manuel Cypriano's eyes are not now of first-rate quality, and he does not like to pass broken water either in early morning or in the evening shades.

We made fast below the Fazenda do Abarê,* opposite the head of the Ilha Grande, a thin strip about two and a half leagues long, immediately succeeding to that of the Brandões. The bank is here lined with nodules of lime. The little settlement of tiled and tattered houses had its chapel, and we met no difficulty in buying a pig and poultry. The crew reproached me for not having killed a harmless water-snake, and amused themselves with bullying an unfortunate frog of large size, which is popularly supposed to swallow sparks of fire. The boatmen have tales of the "Sapo" getting to Heaven by the aid of the birds, and the animal seems to hold in these regions the position of the spider on the coast of Guinea.†

Nov. 4.—This is the critical day—the acme of our rapid-troubles; we shall pass nine bad places in 6 to 7 leagues. The breadth of the stream is a constantly varying quantity, but generally it is unusually narrow, the effect of increased slope. The left bank is a long line of little hills, whilst the right side is mostly flat and bushy. The profile of the bed is an inclined plane of rock and gravel, divided into sections by level spaces. Long islands and short islands, rocks and reefs, sandbars and shoals, cumber the bed, and the former bear bits of noble forest. There is something majestic in the aspect of the São Francisco, whose turbid waters, here building up, there lying low, now flowing in silent grandeur, fanned by the gentle breeze, and reflecting the gold and azure of the sky, assume an angry, sullen, and relentless aspect when some obstacle of exceptional importance would bar its mighty path.

Rising with the dawn, but not pushing off till 7 A.M., we took the channel formed by the Ilha Grande to the north, and pre-

* A little below this point is the Barreira do Abarê. Both are reminiscences of the Jesuits, one of whom was called Abarê bébé, the "flying father," because he was always on the move. They, as well as the Prelates, took the title of Pay Abarê Guaçu, the Pope being known as Pay Abarê oçú etê (biggest of all). The friars of Saint

Anthony were called Abarê tucúra, father locust or grasshopper, because the hood reminded the savages of the "gafanhôto."

† M. Halfeld (Rel. 215) mentions the Calborge, a singing and amphibious toad, which covers itself with froth. It has also its legends.

sently scraped over the shrub-grown stones as we passed down through the middle of the great "Tubarana" Shoal. Its site is at the head of the Ilha da Missão, where this landstrip, also long and thin, lies parallel with the Ilha Grande. On the right was the Barra do Tubarana, alias da Fazenda Velha, another nullah with a poorly bed. At 10 A.M. we coursed down the middle of the Cachoeira do Imbuseiro, formed between highland in Bahia, fronted in three tiers by the islet "do Meio," and the islands da Missão and Grande.

Twenty minutes then took us to the "impetuous Cachoeira of the Rosario." This is a break right across between Bahia and the head of the Ilha do Serrotinho. We hugged the right bank, and shot an incline of water, which made us sit back in the raft as upon a horse landing after a leap. The channel is smooth, lucent, and visibly lower—now a general feature—than the stream, which breaks with a railway rush on both sides. A heavy bump was the only damage done; here the rule is a bump and a scrape at least once a day.

After the Rosario we took the narrow channel made by the right bank and the Ilha da Barra, a lumpy island, one of a group of three disposed in unicorn—the others being the Ilha do Meio and the Ilha da Patarata. Near an affluent, known as the Barra do Mucururé,* the awning was taken down, and the thermometer showed in the sun 114° (F.), which made my companion suffer; even the black boys on ashore crouched and covered under their little awnings of yellow straw. At the tail of the Ilha da Barra was a narrow presently "flaring out" into a bay. Looking back through a gap to the north-west, we saw the white-washed Church of Belem—another missionary name—upon a dried-up plain, backed by a range of wavy hill.

11 A.M. brought us to our third trial, the "furious Cachoeira of the Cantagallo." It is a "long Sault" of half a mile, with two distinct breaks. The lower is by far the worse. We rolled down the mid stream through boiling glassy water, fringed by rows of surge flowing noisily. At the bottom we shaved the left bank of the Ilha do Cantagallo, a pyriform plain of sand, with a small rocky "Serrote." On the right of the channel is the third

* M. Halfeld calls it Barra do Tarraxi. It is said to rise at a place called the Imburanas, at the Ponta da Serra, and to measure forty leagues.

Cachauhy (do Pianoro, P. N.),* which is always avoided. The river, obstructed in its course, there breaks into waves which dash with thundering violence against the broken reef, and rush between the jags of rock in sluices of dazzling velocity.

We have now a clear league ahead without rapids, but requiring great care. Stones, shallows, and many little runs which the pilot calls simply Pedras, stud the bed. On the left bank is the Serrote do Papagaio, which has been visible since leaving the Ilha da Barra. The profile, seen from the west, is the "Phrygian bonnet," generally known in the Brazil as the "parrot's beak;" from the stream opposite it is a vertical ridge of bare rock.† Here begins the upper break of the second Cachoeira da Panella do Dourado, which the pilot facetiously calls O testo da Panella, the pot-lid. Below is the "famous whirlpool and rapid" of that name; the only sign of a maelstrom was cross-waves from the left or north-west, but on the downward side of a rock-lump by which we ran, we were struck full on the beam by a current flying rather than flowing, and we were once more nearly, but only nearly, swamped.

After a short halt for baling, we resumed. Number 5, the Cachoeira do Boi Velho, was not of much importance; it gives a fair way to the right, leaving the heaviest break on the left. Again the stream became clear, and the banks were lined with settlements; prairie fires, a symptom of expected rains, and burnings for new "roças" appeared all around; but they were of small extent, as the people want grass for their stock. The air becomes even more arid than before, and the surface of the land is mere dust. The right shore showed the Arraial da Missão de São João Baptista de Rodellas, more curtly called "As Rodellas;" it was a village of "Caboclos," pauper huts gathering about a large and well-washed church, backed by a wave of high ground. In 1852 the temple was in ruins, but a Capuchin Missioner, Frei Paulino de Lusione, collected alms, and reconstructed it. The pilot told me an ugly story about some ghostly man, here stationed, who showed a pronounced propensity for "Caboclas" (the feminine), under the age of twelve. One of his

* M. Halfeld gives at this place a Cachauhy de Cima and a Cachauhy de Baixo.

† In the Relatorio (p. 168) it is called

Serrote da Pedra; the trend is made from north-east to south-west, and the material is stated to be "gneiss granite" (unstratified gneiss), granite and quartz.

victims ran away, and complained to the Delegate of Police, who at once imprisoned, and finally compelled the Reverend to quit the country. There were other tales of debauchery, cloaked by sanctity, especially one of holy water, which proved to have a pestilent taste of gin; true or not, they prove that the moderns do not secure the respect paid to the ancient Jesuits.

We rested on the left bank opposite Rodellas, and the boatmen bathed to prepare for the finale, an ugly stretch of two leagues. The channel widens out, for the last time, to nearly three-quarters of a league, and bending from the south-west almost to the south, becomes a mass of islands. Of these eight are considerable tracts of wooded ground.*

At 3.15 we put off from shore, and easily passed through the Cachoeira do Urubusinho, which is some hundred yards in length. On the right was the hill-island do Urubú, a kind of Careg-Luzem-Kuz, which from up stream appears like a monstrous elephant, with white ear and head partly averted, lying down amongst the trees; its spine is a bristling crest of bored and hollowed stone.† To the left of this “hoar rock in the wood” lay the long thin Ilha da Viúva; hence we passed directly into the “furious Cachoeira of the Fura-olho,” or gouge-eye. I confess to having felt cold hands at the sight of the infamous turnings, the whirlpools which the Relatorio calls the terror of navigators, and the pot-holes some fifteen inches deep in the water. Head on, we dashed at the rocks—here bare, there shrub-clad—and more than once we prepared for the shock; often, too, the pilot giving the raft a broad sheer with the sweep of his heavy and powerful paddle, carried us safely through places where we could almost touch death on either side. It was a wild scene; the Eliza swayed and surged to and fro, as she coursed down the roaring, rushing waters that washed the platform; the surge dazzled the eyes when it caught the sun, and on the smooth depths the beams were reflected as by a mirror. “Shout, boys, shout!” cried the old man, in his Cachoeiran element; “I love

* The islands, beginning from above, are—1. Ilha do Cuité; 2. Ilha da Viuva, or dos Cubanos, the latter name confounding it with a smaller feature to the south; 3. I. da Tucurúba; 4. I. do Jatobá; 5. I. de São Miguel; 6. I. da Crueira (sic in map, Cruzeira!); 7. I. do Espinheiro; and 8. I. do Surubabé, in the Relatorio called

“Sorobabé” and “Zorobabé.” Besides these the Plan shows some thirty-five islets of larger or lesser size, not including rocks.

† M. Halfeld (Rel. 169) says that the formation is granitic, and he places the channel on the right, whereas we passed to the right of the “Elephant Islet.”

to hear the shout in these places!" "Hé Fura Olho!" they exclaimed, with their glapissant voices, calling upon Nossa Senhora, and crying, "Ó bicho feio!" to the whirlpools and the ugly-headed, black rocks, whose faces glistened like the hippopotamus fresh from the deep, and whose necks were cravatted with bands of rushing white water, a thin and semi-transparent gauze. We managed "Gouge-eye" in fifteen minutes, and pronounced it very pretty shooting—when it was ended.

The ground-swell below, not a little like the "Gallops Rapids" of Canada, bore us down between the Ilha da Tucurúba,* and its outlying rocks on the north-west, to the Pernambuco bank. We now enter upon the 299th league, which is said to be the worst upon the river, but we found it less formidable than that preceding it. The course begins with a stony break between the left shore and the Ilha dos Espinhos; † a mass of Mimosa tasseled with pink flowers, and well-armed with thorns. Presently it passes a small nameless river-holm on the left, then the line hugs the bank to avoid sunken rocks and shallows; once more it winds amongst the islet-rocks, above the head of the Ilha do Sorobabé; and, finally, it returns to the left side. The tide flowed like a mill race, and in parts the speed would have distanced any steamer; but we had often to hang back, and the total of two miles occupied us twenty minutes.

Then, as the sun began to slope behind the Imbuseiro trees, we heard just ahead the roar of Surubabé, the ninth and last trouble, where ends this upper Cordilheira of Cachoeiras, which preface the Great Rapids. Manuel Cypriano, whose motto certainly should be *festina lentè*, proposed reserving it for to-morrow, but the day was only 4.40 P.M. old, and for old reasons, I at once negatived the measure. During the floods between December and May, which, however, are very uncertain, Surubabé is shot by canoes, and even by small barcas, the only danger being the rapidity of the run, which dashes them to pieces if they touch. During the dries a portage for merchandise is always made. The river has now risen from five to eight palms, ‡ and thus our difficulties are greatly lessened.

* On the left bank the Riacho da Tucurúba, a mere nullah, falls in.

† Others called it "do Espinho." M. Halfeld's plans name it the I. de S. An-

tonio.

‡ At Varzêa Redonda the people declared that it was four to five fathoms above low-water level.

The Surubabé, also called the “Cachoeira do Váo,”* began with our ugly rapid between its island and terra firma. Here the São Francisco “fervet immensusque ruit.” Passing this, we landed on the left bank of the island, above the great obstruction, a wall of granite, extending right across from east-north-east to west-south-west, which might easily be opened. The greater part of it has a clear fall of two feet, and a reconnaissance determined us to attempt the right side of the ledge, where the shoot slopes like the places to which we have been accustomed. The chief danger is the impetus which drives the craft upon the “Váo,” or granite-bed just below and in front of the fall; the dashing water curls back in waves two or three feet high, and would bury the intruder.

The pilot and two men out with their poles, whilst four of us manned the rope, making use of the trees where the tow-path was foul with slippery water-grass, dry shrubs, and tough fig-roots. Down went the raft headforemost, dipping deep her platform, and grazing a boulder on the right side. When she had reached the bottom of the fall, Manuel Cypriano and his men stopped progress with their poles, we sprang on board, punted to the left of the “Váo,” poled back to the island, and, after another little difficulty, which also required cordelling, we exchanged poles for oars, we ran to the left bank, and landed at 5.15 p.m. Our day’s work had covered twenty-seven miles instead of fourteen, the average since leaving Boa Vista.

Then we passed out of the gloom and torment of the Rapids into the calmly flowing stream, whose light blue was stained with the gorgeous red of the western sky. Thus satisfactorily ended all my troubles with cachoeiras upon the Rio de São Francisco, and the sensation was certainly one of great relief. We passed a pleasant quiet night upon the water-grass and the iron-stained Cascalho that banked the smooth channel; under a “dome of steel lit up by the stars;” and within hearing of the dead monotonous crash of the Rapids—perhaps my prejudiced ear did to it injustice—underlying the music of the breeze. There was not a trace of dew, which partly explained the burnt-up look of the land.

* Of the ford, or shallow. M. Halfeld gives Váo, which means an empty place, or desert.

SECTION III.

THE SMOOTHS.

PARROT HILL.—CHALK FORMATION SIMILAR TO THAT OF THE AMAZONS RIVER.
—DIAMANTINE DEPOSITS.—ROCK INSCRIPTIONS HITHERTO NEGLECTED.—
END OF RIVER TRAVEL.

After the “Thousand Islands” and their accompanying terrors, the São Francisco is a sightly stream; here, in the pilot’s phrase, you may fasten a branch to the bows and float safely down stream to Varzêa Redonda. The scenery somewhat suggests the valleys of the Nile and the Indus when they reach the dry country; but the artificial glories of the far richer Brazilian river are all to come. The area of drainage is narrowed by mountain-ranges on both sides; there are few influents, and none of importance; the breadth of the bed greatly diminishes, an immense evaporation ever sucking up the waters, and reducing their volume where we expect to see it increased. On the other hand the depth is more considerable, and the flow if not swift is steady, making up for want of size. Hence the ypoeira becomes an unimportant feature, and we miss the long chain of island and islet, built up by the waters in the shallower portions. The climate becomes exceedingly dry, and the three-months’ rains do not suffice for the sandy thirsty land, rich only in thorns. It wants, however, only water to become fertile as Sindh, and the canalization of Egypt will be much facilitated by the compound slope of the lands about the stream. Agriculture, and even population, are confined to the banks, where the crops thrive by capillary attraction through the porous soil; not a gourd of water is ever bestowed upon the growth, and digging a deep trench, with a dam to preserve the supply during the dry season, is far beyond the power of the present generation.

Here we change the wild, stiff, upright scenery of a granitic country for the soft, amene, and rounded lines of the sandstone and cretaceous formations. The right side shows “Catingas Altas” at a short distance, and at times dwarf bluffs facing the stream; the left is low, and excepting a few scattered lumps, it stretches uninterrupted to the Serra de Ararípe, not visible from this point. The water margin, as far as Varzêa Redonda, is

frequently lined with "Cascalho" of all sizes; some of fine conglomerate, which fractures easily, others of jasper and the various forms of silex, mossed with black lichen, or stained with iron, and giving, when struck, a metallic sound. Here and there the formation shows points of gold, and the people know it as "Gurgulho brabo." We shall spend three days over the fourteen to fifteen leagues along the river which separates us from Varzêa Redonda. The São Francisco makes a great bend to the north, covering seven leagues, when across the heel the line is hardly five miles. I had no reason to lament the loss of time; this section unexpectedly proved itself the most interesting part of the voyage.

Nov. 5.—We found the united stream to measure only 300 fathoms (braças), and its comparative narrowness was set off by a dorsum swelling on the right side, here a normal feature. I was surprised to see so many signs of labour, cultivation extended to the water side, and long lines of hedge ran down the gently sloping bank. It was a peaceful pleasant scene, where nought jarred upon the senses, save only an old negro who was paddling a broken canoe, and cursing like a Celt, because he had lost his hat. Wherever there is irrigation, maize and sugar can thrive, onions and ground nuts yield abundantly, and the sweet potato attains an unusual size. The peach-tree abounds, but here as elsewhere in the Brazil, as far as my experience extends, it is hard and tasteless, fit only for stewing. As on the uplands of the Rio das Velhas the characteristic colour of the flowers is a laburnum yellow; even the Carahybeira now changes its mauve-coloured trumpets for gold.

On the left bank we passed the little influent known as Riacho do Páo Jahú,* and presently we struck the great northerly bend. This round turn in the bed is subtended by the Serra do Penedo, † a long and regular ridge with outlines of sandstone grit. On the north side a dwarf cliff buttressed the stream: the material is coarse arenaceous matter, almost horizontally stratified with perpendicular fracture, tinted red and yellow, and in places black with iron glaze; it was riddled into holes by the water, and displayed long straight lines of imbedded conglomerate, which

* At present it has no stream, and only water wells are in the bed. The people declare that it drains the northern dividing ridge. M. Halfeld (Rel. 171)

writes the word as it is pronounced, Pajaú. Mr. Keith Johnston does the same, and makes it a considerable stream.

† M. Halfeld gives "Serra do Penedinho."

seemed to have been deposited in a calm lake. Our Manuel Cypriano, who had complained of fever during the night, was not himself to-day, and we humoured the laziness of the men by dropping down in mid-stream. A fierce wind presently came up from the north-east, raising the waves in a few minutes, and nearly lost us in the safest part of the journey, not an unfrequent accident with shipping, British and other.

After some difficulty we made the left shore and baled. Here the tall bank was white with marl, and in the upper levels cotton, all unheeded, spread the ground with snow. When the gale had somewhat abated we struck across stream to the Serrote do Pico, whose regular dorsum and sliced cliff suggested rapids, but none were found, the bed being too deep. This lump rises abruptly out of a sheet of sand crumbled from itself; the height is about 110 feet, and the material is the now normal coticular sandstone, iron-glazed below, and of brick-red and grey-yellow in the upper parts. The summit is a bluff, and about the middle the slope assumes the natural angle, growing a few trees; the strata dip easily to the north or up stream, and the perpendicular fracture forms at the corners columnar blocks. As we climbed its knee-cracking sides, the little Mocó-coney came out of his home to stare and bolt back. From this point offsets the direct road to Itacutiára, an hour or two's ride, whereas the stream-way will require from us three days.

We took the right of the Ilha da Tapéra, the only island as yet seen below the Rapids; flat, green, and wooded, it was remarkable near the arid red ground, and the thin dry bush of the bank. Farther down the Bahian side showed us the Povoação da Tapéra do Valentão—the “Village of the Ruins of the Ruffian.” The pleasant name is descriptive of the old inhabitants, a race of bullies muito “enthusiasmados”—as the pilot magniloquently expressed himself. The tall well white-washed and belfry-boasting church, that does not set off the little hovels, is said to be a deception, tumble-down inside.*

Dust-devils flew about in front of us, and sheets of distant rain gave us a hint to take the bank; we made fast in the “nick of time.” Whilst everything around us, even the pinnate leaves, was profoundly calm and still, rose the roaring of a mighty wind

* M. Halfeld (Rel. 173) speaks of it as a “vistosa igreja.”

from the north-east, and columns and mists of brown-yellow silt came charging down upon us as though we had been in the Valley of the Indus. Then the gale tore through the woodland, ploughing the smooth surface of the water and rushing violently upstream. The meteor, which brought with it only a few thin drops of rain, appeared to be, like the African tornado, merely local. An independent squall was seen further down. It took an hour to work round, again striking us from the south-west at 4 P.M. We were then, however, securely embayed in a shallow bight protected by reeds, near a little settlement called Sabuicá. The night brought wind and violent rain, which kept the mosquitoes quiet; our crew, however, seemed to fear them less than the "Besouro Grande," a large black and yellow insect like our bumble-bee, and they declared that its sting causes fever. To-day we saw for the first time under the Gurgulho bravo, agates and onyxes, banded with red and yellow.

Nov. 6.—We resumed our way down the right bank, which was lined with ledges of dark Cascallo. Presently the stream began to bend from north-east to east, the effect of ground waves on the left bank, especially the Serrote do Ambrosio, whose white ridge and light greenery, seen through the morning mist, were easily to be mistaken for a giant tree. We then made a "travessa braba,"* rendered fiercer by the sunken rocks, to the Riacho dos Mandantes on the left bank; the dry nullah at whose mouth the grass had been cut for fodder, becomes an ypoeira during the rains. Here the channel bends gradually from east to south-south-west; the cause is the Serra do Papagaio, a block through which the stream appears to have broken, and which was formerly continued to the Serra do Penedo, passed yesterday. From up-stream the "Parrot's Range" looked like a "Castle Hill," with a tall, ruined tower on the right, connected by a curtain with a smaller donjon to the left, and trending from east-north-east to west-south-west. We went down cautiously under pole, and presently landed to examine the chain; at the same time a furious south-easter came up and rendered progress impossible.

At the foot of the Castle Hill is a nullah flowing in from the east, and formerly it supplied the banded stones (pedras lavradinhas), for which the place is celebrated; now, however, it is

* A "dangerous crossing."

choked with sand. We walked to a stony slope further north, and found on the riverward face, specimens of flint and coloured quartz that soon filled our bags. The most common form was the red and yellow-banded pebble, like those so common about Cambay in Western India; a few were striped white and black. There were also well-stained blood-stones; onyxes fit for cameos; cats'-eyes, as in the streams of Ceylon; "water-drops" (quartzum nobile); crystallized quartz, fragments of rock crystal, and a coarse opalline formation.* Formerly the valued stones were in great abundance, but for years they have been carried off, and we met a rival collector in the shape of a Brazilian youth.

I then worked my way to the Castle Hill, crossing sundry ridges that were crested with upright slabs, like the vertebræ of monster snakes. The broken surface bore nothing but stones and thorns, the usual species of Cactus and Bromelia. The ascent of the lower tower gave us some trouble; even Shakspeare's Mark Antony, in matters of physique the beau-ideal of a traveller as of a soldier, would have complained of shaky knees and short breath after a two months' diet of manioc, rice and fish. The material is a friable grit, breaking almost with the hand, pierced by small holes, as if worm-eaten, and too coarse for whetstones; in the higher parts the particles are smaller and more closely disposed. Lines of harder material ramify over the surface, and rise in alto-relief, forming irregular compartments; but even these crests can be knocked off with a stick. The soft places have been weathered into pot-holes and caverns that from afar resemble a dove-cot. The lower part shows a slightly green discoloration, which at once suggests our upper greensand overlying the stiff blue "gault;" and the higher walls are grey, red and yellow, doubtless a ferruginous tint; in fact, signs of iron everywhere appeared. Lightly imbedded in the arenaceous matter, and evidently deposited by still waters, were horizontal bands of pebbles, smaller sized than those strewn below; hence, doubtless, comes the diamantine "formação" which we shall find in such abundance further down.

Approaching the summit, where the goats had trodden a smooth

* I have already alluded (chap. 21) to existence of the opal, the only gem which as yet art has not learned to imitate. José Bonifaccio (Viagem Min. p. 29) found near Ipanéma of S. Paulo, the

"common opal very like those of Telcobania in Hungary." I have not yet seen in the Brazil the quartz with the harlequin play of prismatic colour, which is still so valuable.

path upon the friable grit, I worked across the crumbling curtain. The latter is a "facão de Morro," a narrow spine with a fall on both sides, and in process of rapid degradation, soon to be level with the plain. It ends in the taller donjon, where a large, upright, and striated block of sandstone, whiter than usual, looks in the offing like a quartz "dyke." The cold, damp sea-breeze and windy clouds interfered with the prospect from the summit; it showed, however, that the lowlands were sandstone flats, from which rose many little buttresses similar to that upon which I stood. This formation we first noticed at the narrows of Ybó. Downstream I could see on the left bank the Serrote dos Campinhos, a sister block; and the substance extended with outcrops of granite and alternation of limestones to the city of Penedo, on the Lower São Francisco. It was noticed by Gardner at Crato in Ceará, and vestiges of the cretaceous period have been traced from Maranhão to the Upper Amazons.*

Nor. 7.—From the Serra do Papagaio a road strikes south-east towards Varzêa Redonda, distant four leagues by land and seven by water. The pilots calculate respectively five and eight, the normal exaggeration of distance, which is measured by the laziness of the crews and the pace of the wretched nags. We set off at 4 A.M. in a dark, cold drizzle, at times lighted by the gusts, and, after a league, we passed on the left bank the Serrote dos Campinhos (de Baixo); here the sandstone rises bare and it forms outlying single pillars, weathered to cheese-wrings, and sometimes resembling "logan stones." The place is known by an ugly two-headed rock projecting from the river. The next feature is Icó on the left bank, backed by its Ypoeira, which is said to breed shoals of fish. † High in front rose on the right bank the Serra da Itacutiára, backed by "Catingas Altas," and fronted by a similar formation, the "Guixaba" on the opposite side.

The roaring wind again arose and drove us for shelter to the left side; on the bank women smoked their long reed pipes, with

* Dr. G. S. de Capenéma, a Brazilian savant, was of opinion that Gardner's discovery of immense cretaceous deposits about the north-eastern shoulder of the South American continent, might be reduced to "Tauatinga," or degraded felspar. The journey of Professor Agassiz has, however, set that question at rest. The signs of the cretaceous period are ferruginous sandstone deposited upon a

lower greensand; marls and limestones soft and compact; thick beds of a finer grained soft and coloured sandstone; and lastly, a great dissemination of chert, siliceous, and true flint. It is apparently barren in organic remains.

† In this part of the river fish is caught easily during the dry season, and especially about the rapids. The people shoot, as well as net and hook, the prey.

small clay heads, and fetched water, whilst the men scraped fish, which they refused to sell. None were in rags as about Joazeiro. The popular skin was yellow rather than sallow; the features were regular and sometimes handsome, the hands and feet were well-formed but large, showing Portuguese blood, and the long, lank hair was "Indian," whilst the pointed teeth probably came from Africa. All were armed, and some carried pouches of the Maracajá, a wild cat spotted like the ounce, and very destructive to poultry and kids. Those who passed by on horseback had shoes with long front leathers, over which the spur strap ran; they used halters and not bridles, and the stirrups were provided with swivels above the instep. They were not uncivil, but independent as their ancestry of the wild, and, perniciously frugal, they ignored the wants of civilization. Yet the land is good, producing in abundance maize and manioc, beans and ground-nuts, sweet potatoes, pumpkins and onions, melons and water-melons, sugar-cane and rice, in the places where it is not flooded by the stream, whilst cotton rotted, as usual, on the uplands.

Upon this "praia," at the turn of the stream from south-west to south-east, we again recognized for the first time after an interval of ninety-three leagues, the true diamantine formation. Along the water were strewed lines of the white and black cattivo, the jetty ferragem, the square Santa Anna, the Agulha, here very large, the snowy Ovo de Pombo, the straw-coloured Siricória (chrysolite or white topaz), and the feijão, the fava and the many kinds of polished "caboclos," whose bright lustre is held to be a good symptom. Further down stream we met with it after turning up the large pebbles (gurgulho brabo), and under the superficial humus it is also spread in a thin sheet. These deposits will continue as far as the Cachoeira da Itaparica, eight leagues below, and there it will again be noticed. The people have never beheld a diamond, and their cattle tramp over what may prove to be a mine of wealth. When they saw us picking up shells and pebbles they lamented their "backwardness," but in the present state of things, exploitation is hopeless. The place is only 90 to 93 miles from the highest station of the steamer, and it is my conviction that it should be carefully examined.

Two young fellows, Rufino Alves de Sà, and Francisco Maria de Sà, of the Engenho Novo lands, were loitering about and

asking us the usual questions, *e.g.* if the English had a King. I examined them upon the subject of a "letreiro," or inscription, of which we had heard up-stream; they declared that they knew the place, and the sight of a Milreis note easily persuaded them to become my guides. They shipped on board the raft and assisted us across the Itacutiará break, which can hardly be called a rapid.

Here the river, sweeping round to the east, passes between the long dorsum of the Itacutiára hills and the bluffs of the "Guixaba;" the two connect by a ridge of iron-glazed sandstone. On the right is a clear channel up and down which boats can pass even by night; in the centre is a peculiar mushroom-shaped rock, and between it and the left bank the bed is very foul. As we approached the reef, and were rushing at full speed with the water, "Captain Soft" let slip the lashing of his paddle, fell upon his back, and remained there grinning like an idiot. The strangers prepared for a cold bath by loosening the band which held their short cutlasses; fortunately, however, the old pilot, furiously working the stern paddle, and using the while language of the most energetic description, drove us safely through the upper break.

We landed on the right bank at the Sitio da Itacutiára to the north of the hills, and walking through a manioc field we reached a sandstone wall, locally called a "Talhada." It bears south-south-west of the upper break, and forms an angle whose arms face to the east and the south-east, thus obliquely fronting the stream. The material is coarse sandstone with lines of conglomerate, reddish-yellow above and below, glazed as though the river had once washed it. Between six and seven feet from the ground there is a roof-like projection, and above it the rock is piled up in blocks. The highest strata in the mountain mass are cut for querns and whetstones. Under the roof the whole wall is covered with characters, varying in size from a few inches to two feet in length, and they extend about twenty feet on each side from the apex of the angle.

I was delighted with my trouvaille, the first of the kind which I made in the Brazil, and which here has not before been noticed.* Jacinto Barbosa da Silva, the farm-owner, declared

* The Relatorio does not refer to its existence. I shall recur to these inscriptions at the end of the present Chapter.

that it was a roteiro or guide pointing out where treasure is concealed, and such is the general opinion touching these inscriptions. An Italian traveller in the days of our interlocutor's grandfather had found that it directed him to a hole in a neighbouring nullah, and by dropping stones they found the cavity to be deep. Slaves were sent to work at it, but presently the waters came down and the spot was lost for ever.

We then resumed work, and easily finished with the Itacutiára break. On both sides there are little settlements called "Ao Pé da Serra:" * opposite these there is a heavy swirl and a string of small whirlpools which have a dangerous look. A clear channel, however, is on the right, and boats go down a hollow in the water with raised rims and strong lateral shoots. A little below on the Bahian bank is a cliff of red-yellow sandstone, a "written rock," resembling, but somewhat smaller than, that first visited; it projects across the stream a similar dark ledge, much grooved and turned by the floods. There must be some risk in ascending as well as descending this break when the winds are violent; and we observe upon the banks that the Canafistula trees, bent almost at a right angle up-stream, rest for support their leeward branches on the ground. At the Pé da Serra of Pernambuco, a line of red sandstone bluffs faces the river with outlines of pillared fragments and rocking stones, whilst a low plain of their own wastage separates them from the bank.

The next feature of importance is called Morros do Sobrado, because supposed to resemble a house. On the left bank below a large Corôa of sand, thicket and stunted trees, extending across three quarters of the bed, are twin bluffs, tall and yellow, separated by a sandstrip, 400 yards long. Stratified and with cleavage they show "lócas" or caverns of unusual size, whose black mouths look as if iron faced; they are favourite nesting places for birds, especially the large grey-coloured hawk (*F. plumbeus*?) which does so much damage to the young of the flocks. Large blocks have fallen into the water, and have received, like the granites, a coat of glaze. On the right bank a mass of glistening black "Marumbés" runs into the stream like a bed of fresh lava, contrasting strongly with the red hills, the loose yellow sands, and the brown Catingas Altas.

* Thus we have Saint Magnus ad pedem pontis, &c.

Presently turning to the north-north-east we sighted one of the most picturesque reaches in this picturesque valley. The river, now of noble dimensions, bulges out and narrows with graceful curves, and the view down-stream is closed by the long low ridge of Tacaratú. The banks, gently shelving, have their slopes divided by hedges of dry thorn, and bear upon the ridge-tiled houses; here they are sandy, there they are green with grass and corn. To the right is the hamlet of Casa Nova, consisting of some twenty houses, and faced by three magnificent Cashew trees, whose domed heads of verdure extend their leafy locks almost to the ground. On the opposite side is the Porto de São Pedro Dias da Varzêa Redonda *—our destination. The thundering roar of a rapid below tells us that we have now finished our voyage.

Here then is the great terminus of navigation on the mighty Rio de São Francisco, down which we have floated some 309 leagues, nearly thrice the length of England. I felt the calm which accompanies the successful end of a dubious undertaking, whilst the beauty of the site and the splendid future which awaits it, supplied the most pleasing material for thought.

I now return to the inscription.

These "written rocks" appear to be common on the Lower São Francisco. In this part they are found at Icó of the Ypoeira, at Itacutiára, and at the Pé da Serra. Below this I heard of them at Salgado, two leagues from the Curral dos Bois ferry (320th league); and upon the Brejo, a breeding Fazenda belonging to the Capitão Luis da Silva Tavares, opposite the Porto das Piranhas and distant six or seven leagues. The people have stories of "Estrondos" and superhumanities which wait upon these indications of buried treasure; at the Brejo there is an "Olho d'Agua" where the clashing of steel rods is heard.

Such inscriptions were known to the old travellers. Yves d'Évreux, speaking to an acolyte, said of "Saint Barthelemy," "Tien, voila ce grand Marata qui est venu en ton pays . . . c'est luy qui fit inciser la Roche, l'Autel, les Images et Escritures qui y sont encore à present, que vous avez veu vous

* All writers, including M. Halfeld, call it Varzem Redonda. I can only say that the people do not. Varzem and

Varzêa, however, are synonymous, signifying water meadows or land occasionally flooded.

autres." His editor, M. Denis, refers to the "grand voyage pittoresque" of M. Debret (i. 46), which does not want a certain interest; the rocks are upon the mountain do Anastabia near the Rio Yapurá, in the Province of Pará. Long before him Koster (ii. Chap. 3)* mentions "a stone in the Province of Paraíba upon which were sculptured a great number of unknown characters and figures, especially that of an 'Indian' woman." The rock, which was of great size, lay in the bed of a nullah, and the people who saw the draughtsman at work told him that there were many similar features in the environs, and named the localities. The Count de Castelnau copied inscriptions from rocks on the Araguaya River which were pointed out to him by the Capitão Mór Antonio Rodrigues Villars: † he found them (v. 113—114) at Serpa, *i.e.* "pierre gravée," ‡ on the Lower Amazons, and he alludes to the carved figures on the rocks of the Rio Negro, and to the rock inscriptions of the rivers Orinoco and Essequibo. On the Upper Paraguay the huts of the "Indians" and the neighbouring tree trunks were covered with "singular hieroglyphs" of very varied form, but the traveller could not determine whether they were mystical writing or merely copies of marks which the people had found upon stolen cattle. H. I. M. D. Pedro II., a most diligent student of Brazilian antiquities, has collected all the current information upon the subject of these "incised rocks," and told me that he held them to be the work of Quilombeiros or Maroon negroes. I cannot accept this view, as the African at home ignores every species of inscription.

The glyphs found upon the São Francisco were much less European in form than those published by the Revista Trimensal of the Brazilian Institute.§ The symbols show considerable monotony, the most remarkable forms being the hand, the hoof

* He had his information from a priest who had visited a friend in the Parahyba Province; and he was prevented from copying the sketch by his leaving Pernambuco more hurriedly than he had expected. Southey alludes to this inscription.

† They were seen in 1774 during an exploration by the Ouvidor Antonio José Cabral de Almeida. Cunha Mattos (Itinerario de Rio de Janeiro ao Pará) would trace the inscriptions to the Jesuits.

‡ According to Mr. Bates (i. 308) the

name of Serpao in the Tupí language, "Ita-couatíara," signifies striped or painted rock, from the prettily variegated Tauatinga clay and conglomerate.

§ The reader will find in the Appendix a translation of this curious document. Its allusions to the Great Rapids of Paulo Affonso are evident, but the tale of the deserted city is popularly supposed to be a romance. A Bahian Padre dedicated himself for a score of years to the re-discovery, and died before he effected it.

with a vertical line or lines bisecting it, and the old Gothic double-looped ∞ . My kind friend Dr. (D.C.L.) A. Moreira de Barros, President of Alagôas, and M. Carl Krauss found other characters upon the Rio da Agua-Morta at the village Olho d'Agua do Casado, near the Porto das Piranhas, and about one direct league from the São Francisco River. The site is a grot from three to five metres in breadth, with perpendicular walls of hard, massive granite (syenite?), from which the mica has almost disappeared, and dyed red by oxide of iron. M. Krauss believes that the inscription was made with iron tools. I would remark, however, that the jade hatchets of the natives were with savage perseverance capable of dinting the hardest stone.* Mr. C. H. Williams, of Bahia, who ascended the Panema influent of the Lower São Francisco, found, two leagues up the bed, characters traced in red paint upon the under part of a rough granitic slab. It is much to be desired that all these ancient remains may be photographed before they are obliterated; at present every Caipira, instinctively it would seem, digs his knife-point into the "letreiro" as if in revenge, because it will not betray its secrets. The interpretation will light up a dark place in the pre-historic age of the Brazil,† and the mere mention of them shows that the traveller is wrong to assert "Au milieu des rochers et des arbres gigantesques de ces forêts qui défient les siècles, il ne se trouve pas d'hiéroglyphes ou aucune espèce de signes gravés sur la pierre." ‡

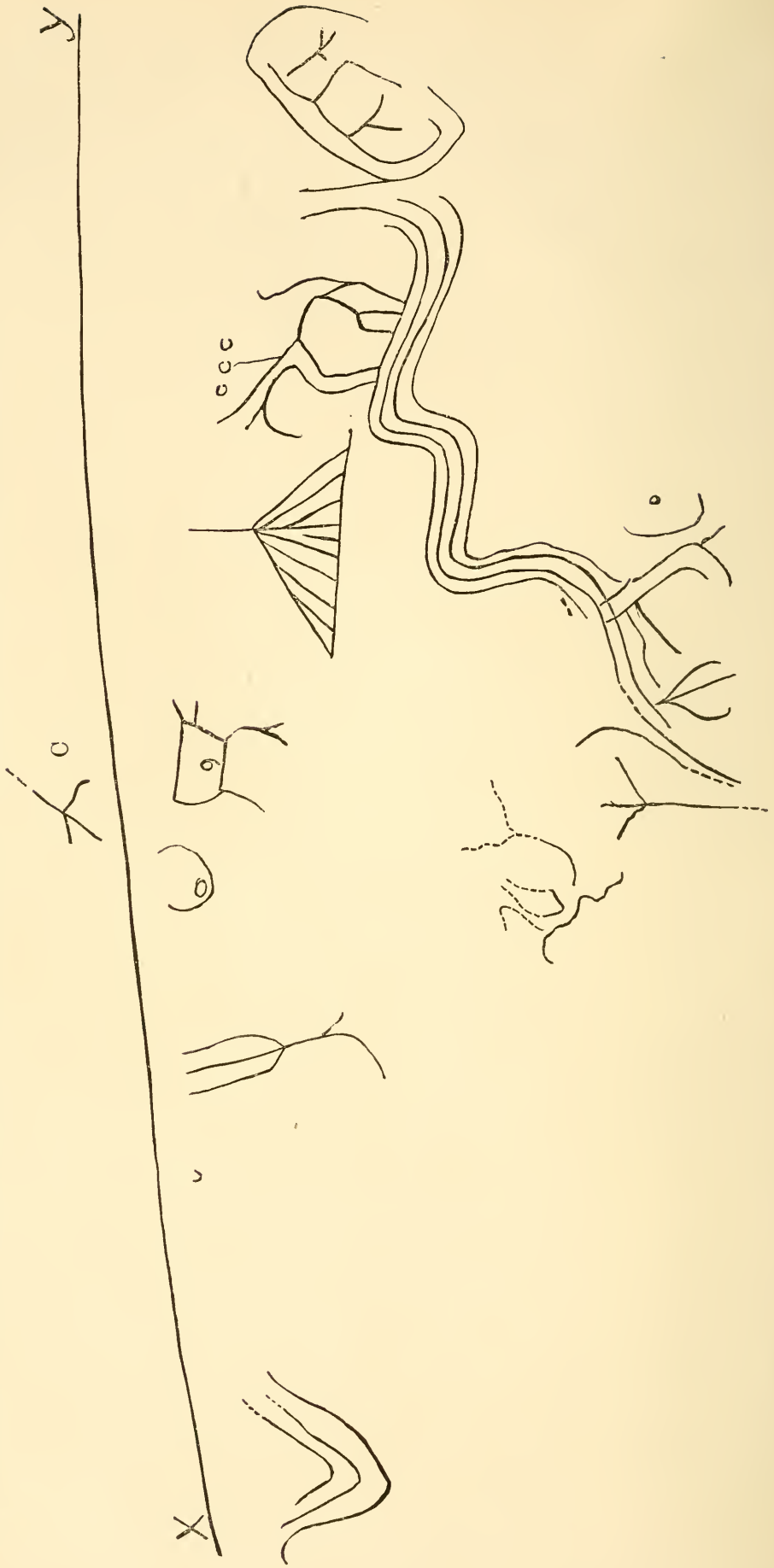
* It is not easy to understand how the savages worked refractory substances. Almost everywhere, however, man has invented the rudiments of a file by means of sand adhering to a gummed thread. In India nephrite was treated with corundum

or diamond dust.

† The inscriptions on the following pages are those found by Sr. Moreira de Barros and M. Krauss, to whom my gratitude is due.

‡ Prince Max. in 1815—1817 (ii. 314).

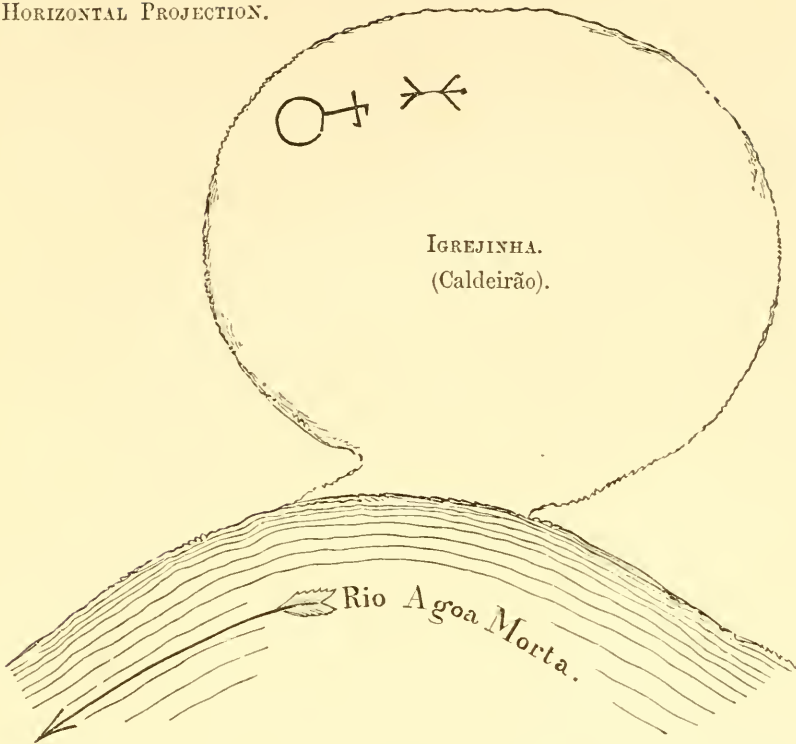
This inscription, twenty to thirty metres up stream, shows only about half of what was probably the original size. In this as in letter A, the arrow points along the stream, and seems to indicate a certain point under the sands where possibly there may have been old diggings. It is certain that gold was taken from this place in old times. M. Krauss found nothing there, but his visit was hurried. He considers this carving to be a plan of the stream.



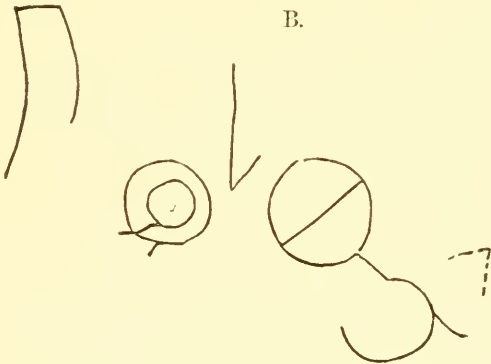
The straight line shows a fissure in the rock.

$\frac{1}{20}$ th of the actual size.

A.—HORIZONTAL PROJECTION.

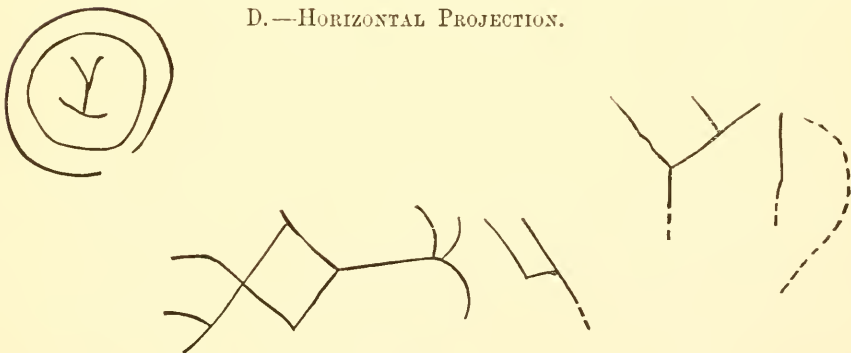


These characters are found at the bottom of a natural Caldeirão or pot-hole, which the people call Igrejinha (little church). It is about 3 metres in diameter, 4 deep, and $2\frac{1}{2}$ above the actual bed of the stream.— $\frac{1}{40}$ th of the actual size.



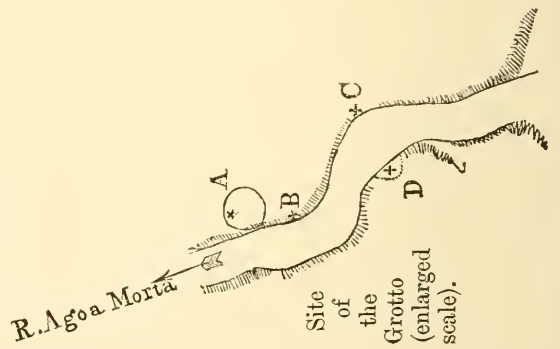
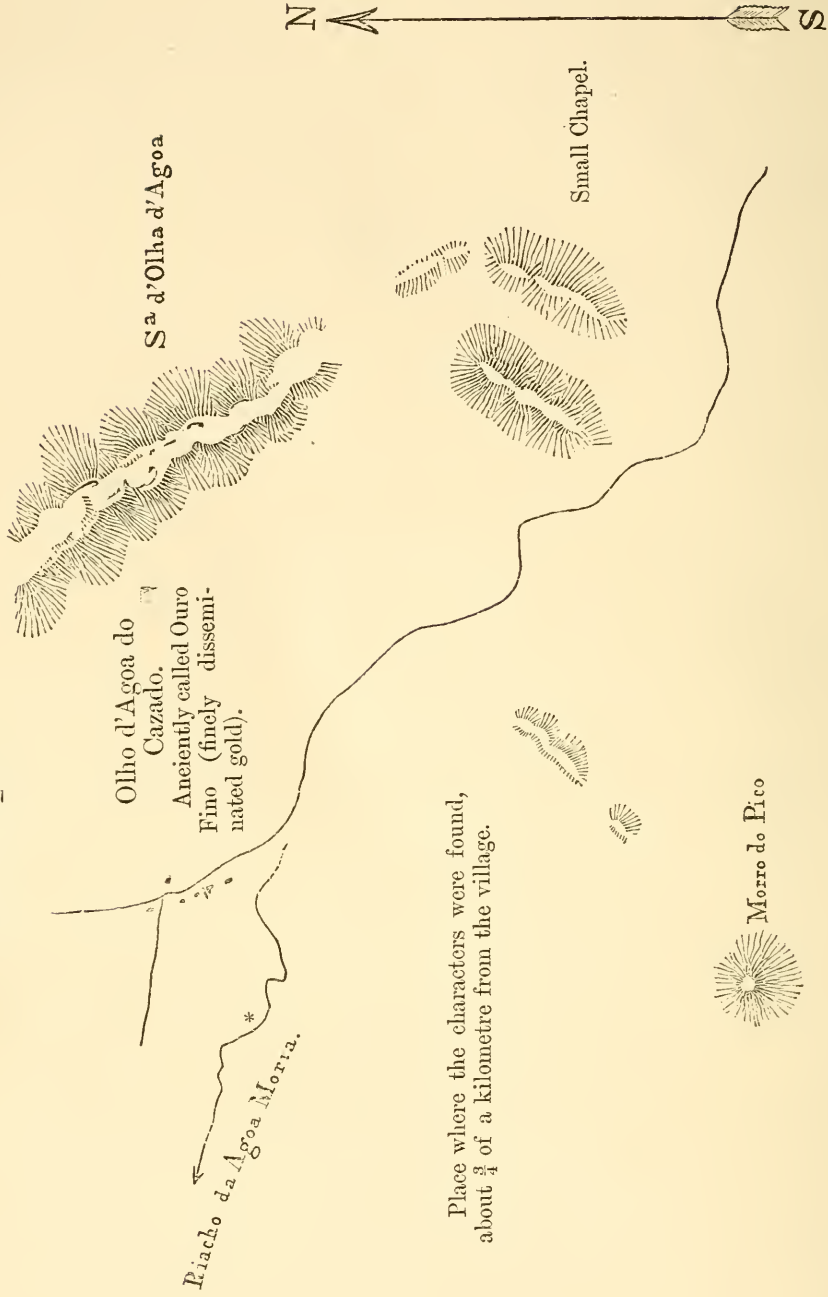
Glyphs found upon the perpendicular wall of the grotto, 1 metre above the stream bed.
 $\frac{1}{20}$ th of the actual size.

D.—HORIZONTAL PROJECTION.

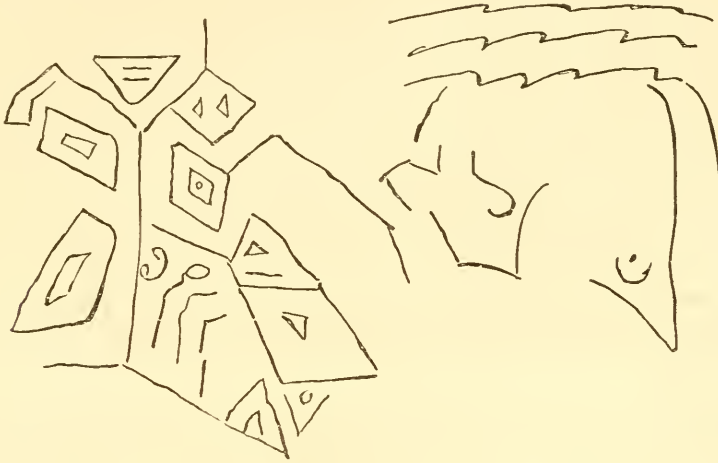


This is also judged to be half the original size. It is at the bottom of a little cave whose plane is some two metres above the stream, and which can conceal two persons.— $\frac{1}{20}$ th of the natural size.

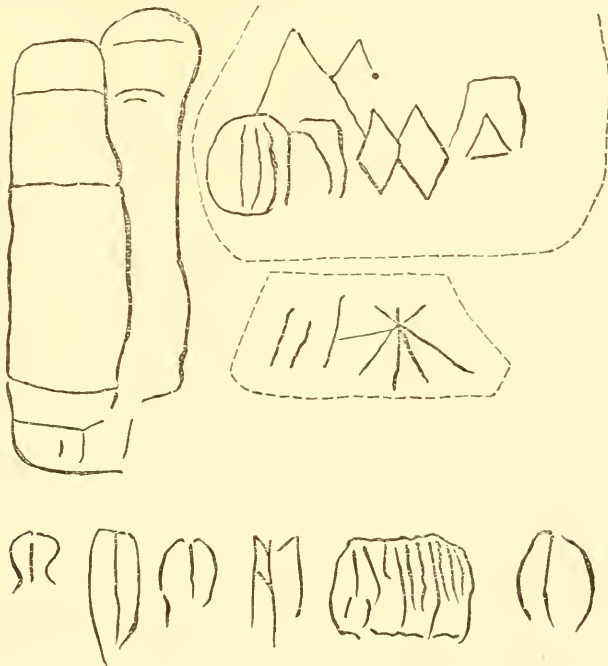
PLAN OF THE SITE.



Mr. C. H. Williams favoured me with a copy of the characters, which he traced upon the "Panema," and these are the most remarkable forms.



The subjoined are the normal types of what I observed at the Itacutiára.



CHAPTER XXVIII.

TO THE GREAT RAPIDS.—PAULO AFFONSO.

VARZÉA REDONDA DESCRIBED.—DISMISSAL OF CREW AND CONSEQUENT RELIEF.—THE MULETEERS OF PERNAMBUCO.—GREAT RAPID OF THE ITAPARICA.

“Then” (when ‘Brazil’s best customer and most natural ally,’ Uncle Sam, sends a few thousands of his energetic children) “might Brazil, pointing to the blossoming wilderness, the well-cultivated farm, the busy city, the glancing steamboat, and listening to the hum of the voices of thousands of active and prosperous men, say with pride and truth, ‘Thus much have we done for the advancement of civilization and the happiness of the human race.’”—*Lieut. Herndon*, p. 372.

I LOOKED at Varzêa Redonda for a city, or for a thriving town, and at best I found only a wretched *Quarteirão*, which may contain a score of houses. The population is confined to a slip of ground along the river, and for want of water, with millions of gallons flowing within cannon-shot, the uplands are utterly neglected. The whole of the left bank, from the *Serra do Papagaio* to the *Varzêa Alegre*, belonged three generations ago to a Brazilian landowner, *Manoel da Souza*. When he died, the eleven leagues’ length was split up into the various *fazendas do Atalho*, da *Varzêa Redonda*, and further down, da *Varzêa Alegre*. All are still occupied by the multitudinous descendants of the original proprietor. The law of genesis, or development, is here carried out with a peculiar vigour; the sole *métier* is apparently *père de famille*—a man who has not his dozen is considered a poor devil. The women bear per head from ten to twenty-five children, and rare is the hut that does not show a great-grand-parent. The effect is due to a healthy climate, abundant, though coarse provision, scanty occupation of the body, and yet scantier of what is popularly called the mind. And I must notice, that even as *Bahia* was found inferior, as regards social life, to *Minas Geraes*

and S. Paulo, so the interior of Pernambuco lay arear of Bahia, whilst Sergipe and Alagôas will be behind all. The latter two, indeed, might easily be thrown into one, but for the political necessity of keeping up as many "government places" as possible.

After arrival I called upon Sr. José Manoel da Souza, ex-justice (inspeitor de quarteirão), who lives at the Porto do Atalho, a few yards above the main landing. He freely offered us the use of his house, but wishing to make some last arrangements before paying off the crew and dismantling the "Brig Eliza," I wished to sleep on board, and regretted my resolution. The night was furious, and the wind raised waves that nearly beat the old raft to pieces. My men having reached the end of their work, had the usual boatman's "spree," hard drinking, extensive boasting, trials of strength, and quarrelling, intermixed with singing, shouting, extemporizing verses, and ending in the snores and snorts of Bacchic sleep. "O Menino" swore that we could not, and should not, advance a step further without him, which ensured for him the "sack." "Majelicão" complicated matters by stealing all the provisions, metal, and loose woodwork that came handy. Next morning my ruffians shed tears of contrition, and cane-rum. The former received 150\$000 for his two months of work-shirking, and, complaining that he feared alone to face the fierce strangers, was permitted to take with him the dog Negra, who had also ended the voyage. The brute combined the unpleasant qualities of cowardice and savageness. It could not be trusted near children and small animals, whilst it would fly from the charge of an angry porker. Another sensation of deep rest followed the last glimpse of my crew's backs as they disappeared en route for Boa Vista. The only face which we regretted to see fade in the afar, was that of the good old pilot. I would earnestly recommend him to the future traveller.

The ex-justice showed us the country round about, and our first walk was down stream. The banks near Atalho are a better site for a settlement than those below, where the Ypoeiras produce extensive insulation, and whose levées can hardly remedy the evil, especially when the streams fall in from the hills. There are extensive scatters of Cascalho, that yielded gold some years ago. The experiment, however, was not repeated. We saw a few agates and a hepatic-coloured silex, here known as figado de gallinha—hen's liver—which is hard enough, they say, even to

wear away steel. Amongst the usual Catingas Altas appeared the Shady Mariseiro tree, whose fruits were scattered upon the ground;* the Quina-Quina, with convolvulus-shaped flower and pointed leaf, and the Embira, whose bark is used for fibre, and whose ashes make good brown soap. The country, according to our host, is full of game, ounces, deer, and wild pig (peccari). We had the usual tales of the man who single-handed slew the "tiger" with his clasp knife, and of the "Cabolláda" that eat everything, hawks and lizards.

The higher parts of the bank showed us on the opposite, or Bahian side, "Olho d'Água," pronounced "Oidá"—a fine hill-block some 800 to 900 feet above sea level.† To the south, and on the left side, is the Serrote do Brejinho, here called the Serra da Itaparica. It is distant three to four leagues along the stream. A mile and a half below the Porto do Atalho begins the second and the greater Cordilheira of Rapids, which will extend over some twenty-five leagues.‡ The Cachoeira da Varzêa Redonda, the portal of the unpassable region, is formed by stony hills on both sides of the stream. Black rocks appear on the right of the bed, and boats have passed it, but in great and lively fear of the panellas, or little whirlpools.

Close to this rapid, and on the left bank, is the Varzêa Redonda proper; its small chapel, under the invocation of São Pedro Dias, bears the date 1862. It is a ground-floor affair, with a verandah and two shuttered windows, pointing to the west. The Vigario resides at Tacaratú, five leagues to the east-south-east. This is a market-town, which supplies Varzêa Redonda with provisions. A fair is held there every Saturday, and the country-people visit it from afar, riding in to make their purchases and to attend the next day's mass. It is also connected by a good road with Bahia, the metropolis, said to be distant 110 leagues.§

In 1852, Varzêa Redonda boasted only of eight to ten houses: the number has now trebled. Nothing is easier than building. The river bed gives the best materials for tiles, and hard woods

* The fruit, when boiled, is said to taste like almonds.

† It is on the Bahian side, and belonging to the Freguezia of Curral dos Bois. The people speak highly of it, declaring the soil to be excellent, the water abundant,

and the air healthy.

‡ The muleteers stretch out these 75 miles to 27, and some to 30, leagues.

§ That is 90 to Alagoinhas, and 20 by railway to S. Salvador da Bahia. Many still prefer this line to the steamers.

are abundant. Sandstone, of which every hill is a quarry, splits up into natural bricks, ready-made ashlar. The finer kinds are good whetstones. I saw many specimens, in which a thin stratum of sparkling grey-green colour was contained in two layers of brown ironstone: the latter, which soon wears down tools of steel, is readily knocked off with the hammer. About eight leagues to the north, at a place called Poço Cercardo, lime is sold at the rate of 2\$000 per alqueire. Thus, here again, the calcareous overlies the arenaceous matter.

The climate of Varzêa Redonda is famed for salubrity. We have again slept in the wind and moonlight, in the rain and dew, with rather improvement of, than injury to, health. Here, as we approached that vast ventilating machine, the Paulo Affonso, the wind comes from all quarters. The north brings tornados of thunder and lightning; the south, "inverno," *i.e.* wind and rain; the east, light showers, which are considered desirable, and the west is a dry draught. The rainy season opens with storms in October and early November; and the heaviest downfall is about the close in February and March. This is also the rule at the head of the lower Rio de São Francisco, whereas, as I have remarked, the coast rains of the same latitude begin when here all is drought.

I dismantled the "Brig Eliza," which had now been "home" for the last three months. The planks were given away to our host. The anchor from Morro Velho was left in his charge,* and the two canoes bought from the Piaba of Sabará, were here sold for 120\$000 to the host's uncle. The next step was to procure animals, which were then rare, being, we were told, engaged in transporting cotton. The charge for making the Porto das Piranhas by the Tacaratú road, was properly 6\$000 a head. I vainly offered 8\$000, and was asked 10\$000 instead of 7\$000 for the journey along the stream to Piranhas. The fact is, the ex-justice, remembering that blood is thicker than water, determined that we should come to terms only with his cousins. Neither he nor they, nor any of the neighbours, had seen aught of the Great Rapids, save the mist-cloud which canopies it, and the uncle had told me that it was all a "peta," or "do."

* The iron was of excellent quality, and much valued by the people. The ex-justice

promised to remit the value to Bahia, but I have not heard that he has done so.

Curiosity here cannot overcome the obstruction of a few hours' ride. The muleteers were not ready till the third day.

The party consisted of the worst men, the worst beasts, and the worst equipments that I had seen in the Brazil; and the disappointment was the greater as Fame has long spoken loudly in favour of the "tropeiros" of Pernambuco. If these be fair specimens, two of them are not worth one Paulista, or Mineiro; and, during the march, there were many unavailing regrets for the troopers Miguel and Antonio, and for the well-fed mules of Morro Velho. The horses were more stubborn and headstrong than mules; they lagged behind; they strayed to enjoy grass and shelter; they rushed forward to prevent being the hindmost, and sometimes they lay down with their loads. Hence some of my collections were lost; hardly a bottle remained unbroken, and the best water-proofs were pierced by the villanous packsaddles. The only attempt at correcting the hoof was to place it upon a plank and to cut down with a formão or chisel. The overcloths of the saddles were loose, and the stirrups just admitting the toe tips, rendered mounting anything but a pleasure. The quadrupeds were weak from want of forage, and the owners would not buy grain for them. Moreover, they were barbarously treated; and for the first time I saw cruelty done to animals by a Brazilian.

The human beings were two and a half, the moiety being represented by a small boy, known as Niger Quim, short for his name, Joaquim Gomes Lima. He looks like twelve, but claims fourteen years of age; and his gruff voice is in his favour; a strange mixture of man and his father; he carries tobacco, flint, and steel; he knows all the local chaff; he is "up to" every adult vice; he offers drink to women thrice his date, and yet he plays with wild fruits, and he climbs up the cruppers of the horses as young Bedouins mount their camels in play. The adults Ignacio Barbosa da Silva, and João, popularly known as "João Caboclo," combine almost every fault of the trooper—intoxication excepted. The difference between them is that Ignaciô has a merry eye, which does not belie his nature, whilst very vile is the temper of the Caboclo.* Both are extra lazy. In the morning I have to turn them out of their hammocks, and

* *Mofino como Caboclo* (poor devil as a Caboclo) is an old Brazilian proverb.

they sleep in the bush when they should be collecting their animals. During the first night they allowed (as if they had been Somal) a dog to plunder their meat-bag, rather than take the trouble to hang it up. They must drink water after every two hours; they rest after three; they put their head into every cottage, and they halt to chat with chance-comers on the road. They squabble about carrying half a pound of each other's cargoes, and they use foul language, here by no means a common practice. The principal amusement is to couch the staff like a lance at rest and to dash at the cattle feeding near the path, this "making a fox," always produces a scamper that is ever enjoyed. On the morning after our start, the Caboclo found his temper, and loaded his two beasts to return, demanding, when he knew me to be at his mercy, an additional sum before he would continue the journey. His beard was in my hand after we had reached our destination, but I contented myself with making him yellow with fright for the benefit of those to come, and with *not* paying the money unjustly claimed. A similar proceeding at the Island of Zanzibar, after my return from discovering the Lake Regions of Central Africa, proved strongly to me the absurdity of "public spirit." Yet mere calumny will never deter me from doing what I there and then did. Travellers will never be well treated as long as their predecessors act upon the principle—or rather non-principle—of forgive and forget at the journey's end, because it is the journey's end.

* * * * *

The cream of the expedition was now to be tasted, but the enjoyment began with a succession of bitters.* Payment by the host's uncle delayed departure till noon; we could not be allowed to go fasting, and the sun neared the horizon as we mounted our wretched nags, and cast a last loving glance upon the graceful curve, and the "cupped trees" of the fair "round reach."

The path lay southwards along the left bank down the old riverine basin, over which the waters were wont to spread as far as the rolling-ground on either side. It was deeply cut by

* The approximate distances of the march were as follows:—

1.	Nov. 10,	Varzêa Redonda to Itaparica,	time 3h. 30',	miles 9,	in the 317th league.
2.	„ 11,	Itaparica to Barra do Moxotó	„ 6h. 0',	„ 15,	„ 324th „
3.	„ 12,	Barra do Moxotó to PAULO AFFONSO	„ 2h. 0',	„ 5,	„ 326th „

Total 11h. 30', miles 29

“tip-overs,” which during the rains form islands; these must resemble the higher sites in the Egyptian valley, when “*pingui flumine Nilus*” floods. Between the waters are dwarf table-lands, sterile enough, except where the stream has flaked the sand with hard-baked mud; the richest parts are the Brejos and Brejinhos, little swamps which produce an abundance of cane, cereals, and oil-seeds.

The violent “*Vento Geral*,” here much deflected from the north-east, struck full in our faces. I blessed it for the first time since the beginning of the last month. During this portion of the journey, it generally rose with the moon, and blew itself out after a few hours. The climate suggested that which Bruce called the “hottest in the world,” 61° (F.) at sunrise, 82° at sunset, and at 3 P.M., 114° , rising even to 120° in the shade.

When the moon hung high in the air, we reached the “*Brejinho de Baixo*,” and were well received by the owner, Manoel Victor da Silva. His little sugar-mill stands near a swamp, which feeds an old but still luxuriant clump of cocoa-nut trees; the fruit was in the best condition for drinking, and the pleasant sub-acid and highly cooling milk revived memories of Fernando Po.

In front of the house rose the Serra da Juliana,* with a prominent knob called *Nariz Furado*, or pierced nostril; this is the eastern limit of the ancient bed. We passed an unusual sight within hail of a rapid which we had not shot, and which we were not to shoot.

Before the shade had cleared away, we were aroused by the local alarm, the cry of the *Papanshó* bird, and as the *Rosiclér*, or morning light, dawned over the hill-tops, we went with our host to examine the rapids of the *Itaparica*.† Here the stream, whose glossy smoothness we had yesterday admired, falls suddenly into a convulsion; a little bay on the Pernambuco bank shows where canoes find the “*ne plus ultra*,” and a few yards beyond it, the *São Francisco* dashes at a grim ridge of black rock and, splitting into three foamy white lines, disappears from sight. The gate is formed by a rounded hill, the Serra do Padre ‡ on the left or

* So called from an ancient *Moradora*. “*Morador*,” I may remark, does not always mean “*habitant isolé*,” here it is mostly applied to a class for which we have a name, “*peasant-proprietor*,” [but whose existence is sadly wanted.

† This name also may be an ornithological index; in the great bay of S. Salvador (*Bahia*), the Long Island is called “*Itaparica*.”

‡ M. Halfeld (p. 178) calls this staple the *Serrote do Brejinho*.

north-eastern bank: and on the opposite side by the Serra da Itaparíca, a long, straight curtain of bluffs, disposed almost perpendicularly to the bed. In former times they were parts of a dam, which, intercepting the stream, contained a lake; the waters found a "soft place," burst through the wall, and formed the present Cachoeira.

The material of the ridge is sandstone, lined and pudding'd with large and small water-worn quartz pebbles, often passing clean through the blocks. On the banks are found iron-pasted cánga, and large blocks of amygdaloid and boulder conglomerate. The base is a fine, pink syenite, like that of the Nilotic Cataracts. Where the violence of the waters extends the rock is iron-plated with the usual glaze; it is black, as if coated with tar, and the aspect is grizzly in the extreme.

On the right, or Bahian side, the channel has a perpendicular fall,* which has dashed to pieces all the rafts and canoes drawn into it by accident; this feature would be best seen from the slopes of the Itaparíca bluff. A tall, longitudinal hogsback, of dark and slippery sandstone conglomerate, rises between the south-western and the central channel. The latter is divided from the third or north-eastern branch by a "mal-paiz" of polished black rock, radiating heat and fire afar, not unlike a lava-field. During the depth of the dries, the jutting-stones approach one another, and a man with a leaping-pole might cross dry-footed the whole Rio de São Francisco.† At such times, also, the site is excellent for a bridge; but in the floods the whole bed becomes a furious, dashing torrent. The rocky ridge extends to some distance on both sides, and here it becomes plain that lateral canalization should not be attempted.‡ It will be plainer still when travelling along the stream, whose banks, alternately rocky and sandy, here dry and there much inundated, will drive the tramway to the skirts of the northern containing ridge.

Nowhere had I seen such gigantic "caldeirões," pans and pot-holes, turned by the water-lathe; some of them were fifteen feet

* The height of the drop varies, according to season, from 6 to 32 feet: the united altitude of the fall, within half a mile, is not less, during the dries, than 55 feet.

† All the Brazilian rivers which I have visited show these extraordinary narrows, when the water, after having spread out

for perhaps a mile in breadth, is compressed to the dimensions of a brook. Of course they are always fatal to navigation.

‡ M. Halfeld justly deprecates a line of 72 geographical leagues, mostly cut in the rock, and requiring 108 flood-gates; at an expense of about 100,000,000 francs

deep by half that diameter, and the sides and surface were jetty as the Itacolumite rock turned into a hole. Mr. Davidson, whom the guides used to call "old lizard" (*lagartixo velho*), from the ease with which he swarmed up the smooth ridges, and stopped upon the wall-crests, where they would not venture, found in these natural wells the finest crystals and the best diamantine formation. Many similar cavities are doubtless covered over with thin slabs of rock, easily broken into by crow-bars. These places should be carefully searched for gems, and some favourite of fortune will probably make a "pot of money" in a few months. The only use to which at present the open cauldrons are applied is for tanning, their lips are white, and the pits are full of tainted liquid.

I then walked to below the rapids. Here the syenite, the proper material for sphinxes and obelisks, crops out of the white and tree-scattered sands in smooth, bold, and rounded heaps. This point shows the meeting of the waters, which, spuming and whirling from the prison-walls of iron, rush roaring into one another's arms. There is nothing of grace and little of grandeur in the spectacle; all is dark and lurid as a river of the "Inferno."

Tudo cheio de horror se manifesta,
Rio, Montanha, troncos e penedos * * *

Claudio Manoel da Costa.

The first six miles after the Itaparica led over a land like that of yesterday. Then we came to the Riacho do Mouro,* where hill-spurs, abutting upon the stream, afforded us only road, narrow gullies, with steep walls, and gutters paved with rolling-stones—in fact a "Caminho perigoso." This bad bit may, I was told, be avoided by following the "Desiro do Bom Querer," about half a league away from the stream. After working for two whole hours, the troopers would halt under a tree, ragged as are all on this bank, at the Porto opposite the Passagem do Jatobá. The river now becomes generally repulsive, it narrows to the size of the Upper Rio das Velhas, and the dull, yellow waters sullenly swirl, boil, and foam around and against central and side jags of

* M. Halfeld (p. 180) calls it the Riacho do "Murro," and in his map, "Muro;" he makes both to be corruptions of Morro. I give the popular pronunciation. In the

Brazil, Mouro or Moor, and Mourería, a "Moorery," mean a gipsy, and the quarters of the cities or towns to which they were confined by law.

rock, whose black or tawny skins contrast unpleasantly with patches of chalk-white sand. The "Passage" is comparatively safe, and there is a ferry to the Cural dos Bois, on the highway to Bahia. Some fine trees appeared upon the far side, sheltering the village, which showed a scatter of huts,* with a chapel dedicated to Santo Antonio da Gloria. The ferrymen sat and stared at us, bare-footed and half-savage beings in foul leathers, and chaplets suspended to their necks. All held, disdainingly the support of a belt, sheathless, plate-handled knives, equally ready for a friend or an ounce; formerly the ecclesiastics of these regions never went abroad unweaponed. An "Eu sei?"* long drawn out, as by an Essex boor, was the question that answered every query, and "Au shé,"—Oh, pshaw!—was the token of dissent.

We resumed the march under what Sr. Ignacio was pleased to call "sol macho," a "male sun" of ungentle beams. The road was now deep and sandy, better for man and worse for beast, cut by dry nullahs, scattered with pink quartz and silex superficially streaked and banded; and obstructed by blocks of syenite and porphyritic granite—the Olho de Sápó, or toad's eye, of São Paulo. Trees which up-stream bore fruit three weeks ago, were here in flower awaiting rain, and the river presently resumed the dimensions which it had at Pirapora; the depth, however, was great, and this, combined with its swiftness, and the great loss by evaporation, explains the shrunken dimensions.‡

The moon had risen when we descended the vile bank, and threaded the stagnant pools of the Moxotó or Mochotó, a stream which rising near "Cairirys Velhas" to the northwards, divides the provinces of Pernambuco and Alagôas. Opposite its mouth is a miserable village, which boasts of the last ferry above the Great Rapids. We slept in the bush, and I felt all that depression with which one approaches a long looked-for object, whose fruition appears so fair from afar. At Varzêa Redonda they had compared Paulo Affonso with the Itaparíca, which certainly did not reward 1500 miles of such travel, and all had agreed that the former is grand only between June and September, when the

* In 1852 there were 45 houses, with 180 to 200 inhabitants.

† "How the — do I know?" Emphasis is given by the tone as in that most useful phrase "Pois não."

‡ These places seem generally to have suggested to the older geographers that part of the water disappeared through subterranean passages.

water is at its lowest. I saw no smoke-columns, after hearing that they were visible from the Serra da Paricornia in the Matinha da Agua Branca, twenty-four miles off; and after reading Colonel Accioli, who declares that when condensed by the morning cold, they may be seen from the Ararípe Range, distant thirty leagues. Nor could I distinguish within two leagues of our destination the "Zoadão," or thunder, which, they affirm, is audible at the Serra do Sobrado, thirty-nine miles along the stream.

Apparently I was doomed to a bitter disappointment.

Resuming on the next morning our melancholy way through the province of Alagôas, we could not but remark the nakedness of the land. The huts, almost destitute of side-walls or divisions, were mere "tapéras,"* ragged as the population, and from the bridle-path we could see through them. In the immediate vicinity of the Great Rapids there is not a hovel, and at the last house on the left bank, near the Riacho do Corrêa, we asked our direction from its owner, Manuel Leandro de Resende. He returned a civil answer, saddled his horse, and accompanied us. I liked his manner, and engaged him as a guide. Hereabouts the semi-barbarians are inclined, like the savages of the Congo, dwelling near the "Yellalabs," to force services upon the stranger visiting the "Cachoeira." I need hardly say that a guide, unless he be the rare bird of the right species, often destroys all the pleasure of the spectacle by his condemnable attempts to be "agreeable."

* "Ce mot seul de Tapéra, qui designe une maison abandonnée, montre que cet établissement n'existe plus." (Castelnau,

v. 50.) We shall presently see that this is not always the rule.

CHAPTER XXIX.

PAULO AFFONSO, KING OF RAPIDS.

—— wie ein Wassersturz von Fels zu Felsten brauste
Begierig wüthend, nach dem abgrund zu.—*Flust.*

PRESENTLY we heard a deep hollow sound, soft withal, like the rumbling of a distant storm; but it seemed to come from below the earth, as if we trod upon it: after another mile the ground appeared to tremble at the eternal thunder. Sr. Manuel Leandro led us off to the left of whence came the Voice, and began unloading the mules at the usual halting-place. I looked for the promised "Traveller's Bungalow," and saw only the stump of a post, sole remnant of the house run up to receive His Imperial Majesty of the Brazil, who visited the place in October, 1859. The site is a bed of loose sand, which in the height of the floods becomes a torrent. We shall afterwards find where it falls into the main stream. Our rude camp was pitched under the filmy and flickering shade of a tall *Carahyba mimosa* whose trunk, in places peeled of bark, showed many a name; apparently, however, the great Smithian Gens has been laughed out of cutting and carving its initials and date—here all were Brazilians.

I should advise those who visit Paulo Affonso in the dry season to make at once, with the aid of plan and guide, for the *Mãi da Cachoeira*, the "Mother of the Rapids," where all the waters that come scouring down with their mighty rush are finally gathered together. To see cataracts aright, it is best, I think—though opinions upon this point differ—to begin with the greatest enjoyment, the liveliest emotion, and not to fritter away one's powers, mental and physical, by working up to the grandest feature. Moreover, this one point displays most forcibly the formation

which distinguishes Paulo Affonso from all his great brethren and sisterhood.

Stowing my note and sketch-books in a "Muchíla," or horse's grain-bag, and hanging it over the guide's shoulder, I struck across the left bank of the river; here a lava-like "Mal-paiz," resembling that of the Itaparíca. The stones, polished as if they were mirrors, or marble-slabs, glittered and reflected the burning sun-beams: in places the ridges are walls of turned and worked rock that looks like mouldings of brass, bronze, or iron. Many of the boulders are monster onyxes, or granite banded and ribboned with quartz: they are of an infinite variety in size and shape, in make and hue, rough and smooth, warm-red, rhubarb-yellow, dull-black and polished jet.

Chemin faisant we crossed an Eastern Channel, at this season almost dry, a thread of water striping the bottom. It forms with the main body a large trapèze-shaped Goat Island, which presents its smaller end down stream. Paulo Affonso differs essentially from Niagara, whose regular supply by the inland seas admits little alteration of weight, or size, or strength of stream, except in the rare winters when it is frozen over. About December, as the floods run high, this tiny creek * will swell to an impassable boiling rapid, ending in a fine fall about the "Vampire's Cave." Upon this "Goat Island," where if there are no goats the walking is fit for them only, are short tracts of loose sand alternating with sheets of granite, and of syenite, with here and there a "courtil" of greener grass. The walk leads to a table of jutting rock on the west side, where we cling to a dry tree-trunk, and peer, fascinated, into the "hell of waters" boiling below.

The Quebrada, or gorge, is here 260 feet deep, and in the narrowest part it is choked to a minimum breadth of fifty-one feet. It is filled with what seems not water, but the froth of milk, a dashing and dazzling, a whirling and churning surfaceless mass, which gives a wondrous study of fluid in motion. And the marvellous disorder is a well-directed anarchy: the course and sway, the wrestling and writhing, all tend to set free the prisoner from the prison walls. Ces eaux! mais ce sont des âmes: it is the spectacle of a host rushing down in "liquid vastness" to victory, the triumph

* In M. Halfeld's plan the creek is much larger than it appeared when I visited it: his journey was probably made later in the year.

of motion, of momentum over the immoveable. Here the luminous whiteness of the chaotic foam-crests, hurled in billows and breakers against the blackness of the rock, is burst into flakes and spray, that leap half way up the immuring trough. There the surface reflections dull the dazzling crystal to a thick opaque yellow, and there the shelter of some spur causes a momentary start and recoil to the column, which, at once gathering strength, bounds and springs onwards with a new crush and another roar. The heaped-up centre shows fugitive ovals and progressive circles of a yet more sparkling, glittering, dazzling light, divided by points of comparative repose, like the nodal lines of waves. They struggle and jostle, start asunder, and interlace as they dash with stedfast purpose adown the inclined plane. Now a fierce blast hunts away the thin spray-drift, and puffs it to leeward in rounded clouds, thus enhancing the brilliancy of the gorge-sole. Then the steam boils over and canopies the tremendous scene. Then in the stilly air of dull warm grey, the mists surge up, deepening still more, by their veil of ever ascending vapour, the dizzy fall that yawns under our feet.

The general effect of the picture—and the same may be said of all great cataracts—is the “realized” idea of power, of power tremendous, inexorable, irresistible. The eye is spell-bound by the contrast of this impetuous motion, this wrathful, maddened haste to escape, with the frail stedfastness of the bits of rainbow, hovering above; with the “Table Rock” so solid to the tread, and with the placid, settled stillness of the plain and the hillocks, whose eternal homes seem to be here. The fancy is electrified by the aspect of this Durga of Nature, this evil working good, this life-in-death, this creation and construction by destruction. Even so, the wasting storm and hurricane purify the air for life: thus the earthquake and the volcano, while surrounding themselves with ruins, rear up earth, and make it a habitation for higher beings.

The narrowness of the chasm is narrowed to the glance by the tall abruptness, yet a well-cast stone goes but a short way across, before it is neatly stopped by the wind. The guide declared, that no one could throw further than three fathoms, and attributed the fact to enchantment. Magic, I may observe, is in the atmosphere of Paulo Affonso: it is the natural expression of the glory and majesty, the splendour and the glamour of

the scene, which Greece would have peopled with shapes of beauty, and which in Germany would be haunted by choirs of flying sylphs and dancing undines. The hollow sound of the weight of whirling water makes it easier to see the lips move than to hear the voice. We looked in vain for the cause: of cataract we saw nothing but a small branch, the Cachoeira do Angiquinho—of the little Angico Acacia—so called from one of the rock islets. It is backed on the right bank by comparatively large trees, and by a patch of vividly green grass and shrubbery, the gift of the spray drifting before the eastern sea-breeze. This pretty gush of water certainly may not account for the muffled thunder which dulls our ears: presently we shall discover whence it comes.

I sat over the “Quebrada” till convinced it was not possible to become “one with the waters:” what at first seemed grand and sublime at last had a feeling of awe too intense to be in any way enjoyable, and I left the place that the confusion and emotion might pass away. The rest of the day was spent at “Carahyba Camp,” where the minor cares of life soon asserted their power. The sand raised by the strong and steady trade wind was troublesome, and the surface seething in the sun produced a constant draught: we are now at the very head of the funnel, the vast ventilator which guides the gale to the upper Rio de São Francisco. Far to seaward we could see the clouds arming for rain. At night the sky showed a fast-drifting scud, and an angry blast dispersed the gathering clouds of blood-thirsty musquitos. Our lullaby was the music of Paulo Affonso; the deep, thundering base produced by the longer and less frequent vibrations from the Falls, and from the Rapids the staccato treble of the shorter wave-sounds. Yet it was no unpleasant crash, the deeper tones were essentially melodious, and at times there rose an expression in the minor key, which might be subjected to musical annotation. I well remember not being able to sleep within ear-shot of Niagara, whose mighty orchestra, during the stillness of night, seemed to run through a repertoire of oratorios and operas.

We will now apply ourselves to the prose of the Great Rapids.

The name, as mostly happens in these regions, is a disputed point. Some make “Paulo Affonso” a missioner-shepherd,

who was hurled down the abyss by the wolves, his "Red-skin" sheep. Others tell the story of a friar, who was canoeing along the river, when the Indian paddle-men cried, in terror, that they were being sucked into the jaws of the Catadupa: he bade them be of good cheer, and all descended whole.* "Such reverends are now-a-days rare," observed Sr. Manuel Leandro with an unworthy sneer. Similarly in the Province of São Paulo, the Tieté river has a fierce Rapid, known as "Avaremandoura" — Cachoeira do Padre, or the Rapid of the Priest. Here, according to Jesuit legend, Padre Anchieta, one of the multitudinous thaumaturgi of the Brazil, was recovered from the water "some hours afterwards, alive and reading his breviary with a light in his hand." More sober chronicles declare that the poor man was dragged out half drowned.† The gigantic cataract of "Tequendama," we may remember, has also its miracle; it was opened by the great Bochica, god of New Granada, a barbarous land, that had hardly any right to have a god. Others pretend that Paulo and Affonso were brothers, and the first settlers, who gave their names to the place. I would, however, observe, that on the right bank of the stream, opposite the Ilha da Tapéra, one of the many that break the river immediately above the upper break, is a village of fishermen and cultivators, whose name, "Tapéra de Paulo Affonso," shows that it has occupied the site of a ruined settlement, probably made by the colonist who, happier than Father Hennepin, left his mark upon the Great Rapids near which he squatted. The "Tapéristas" are still owners of the right bank: the left belongs to one Nicoláo Cotinguiba,‡ of the Engenho do Pinho, and near "Carabyba Camp" two properties meet. The Cachoeira is in the Freguezia of the Mata da Agua Branca.

The locale of the Paulo Affonso has been very exactly misrepresented by geographers who write geography for the people.§

* M. Halfeld (Rel. p. 184) thus gives the legend: "Even they relate that a friar, whilst crossing the river above the Rapid, was sleeping in the canoe which carried him: the pilot, who was an Indian, being unable to manage the craft, and being drawn into the stream, went down. He was never seen again" (a moral, I suppose, pointed against careless pilots, here as common as idle apprentices). "But the friar, who neither woke nor felt the

least inconvenience, floated ashore below the Rapids, and was found still sleeping. When aroused by the people, he remembered nothing of what had happened."

† Quadro Historico da Provincia de São Paulo, per J. J. Machado d'Oliveira (p. 58).

‡ P. N. of a place.

§ "The San Francisco River . . . escapes through a break between the Sierras Muribeca and Caryris, between which latter and the Atlantic run the other chains,

This sudden break in the level of the bed, this divide between the Upper and Lower São Francisco, is not formed by a prolongation of the Serra da Borborema, nor by the Chapada das Mangabeiras, nor by Ibyapaba "fim da terra," nor by the Cairirys old or new, nor by the Serra da Borracha, alias Moribéca, so imminent in our maps.* The humbler setting of the gem is a rotting plain brown with stone, scrub, and thicket, out of which rise detached blocks, as the Serra do Retiro, about three leagues to the north-west, and to the west the lumpy Serra do Padre. On the south-western horizon springs, sudden from the flat, a nameless but exceedingly picturesque rangelet of pyramidal hills and peaks, here and there bristling in bare rock, and connected by long blue lines of curtain.

Though our prospect lacks the sublime and glorious natural beauty of Niagara, tempered by the hand of man, and though we find in Paulo Affonso none of the sapphire and emerald tints that charm the glance in the Horseshoe Falls, still it is original and peculiar. In "geological" times, the stream must have spread over the valley; even now, extraordinary floods cover a great portion of it.† Presently the waters, finding a rock of softer texture and more liable to decay, hollowed out the actual "Talhado," or great fissure, and deepened the glen in the course of ages. We have also here the greatest possible diversity of falling water; it consists, in fact, of a succession of rapids and cauldrons, and a mighty Fall ending in the Mãi da Cachoeira, upon whose terrible tangle of foam we have just looked down. If Niagara be the monarch of cataracts, Paulo Affonso is assuredly a king of rapids; an English traveller who had seen the twain, agreed with me in giving the palm to the latter, as being the more singular and picturesque of the two, which are both so wondrous and so awful. He had not visited

preserving an exact parallelism with it" (p. 141, *Physical Geography*, from the *Encyclopædia Britannica*, by Sir John W. F. Herschel, Bart. Edinburgh, Black. 1861). The geography of this most eminent astronomer is frequently at fault: he reminds us of the prophets and the inspired writers of bygone days, who knew everything about heaven, and very little about earth.

* They mostly make the north-eastern extremity of the Moribéca Range hug the

Rapids. There is no such line visible, and the people have forgotten even the name of the old explorer who is mentioned in documents dated 1753-4. Col. Accioli (p. 14) refers to the mountains, and says, I know not upon what authority, that they contain silver and copper. In the Appendix to this volume, the reader will find allusions to Moribéca.

† The fullness of the stream alters, I am told, the shape of the Rapids, but not of the Falls.

the Itaparíca, that foil whose grimness so well sets off its majestic neighbour.

Nature is not in her grandest attire, yet the vestment well suits the shape. Spines predominate. There is the Favelleiro or arboreous *Jatropha*, with its dark-green oak-like leaves terribly armed; and the Cansanção Maïor (*Jatropha urens*), a giant nettle, whose white spangles of flowers are scattered in mimicry of snow-flakes upon the sombre verdure. The Cactus is in force; we see the common flat *Opuntia*, the little Quipá, with its big red fig, the Turk's-head (*Cabeça de frade*) *Melocactus*, with the crimson fez, whilst amongst the rocks project half-domes of a foot in diameter (*C. aphananthemum*). Some have flowers quaint as orchids, others are clothed in flue, and the rest are hairy and bald, angular and smooth, giant and dwarf, lorded over by the immense *Mandracurú* (*C. brasiliensis*), a tree, but strangely different from all our ideas that make up a tree. The *Bromelias* are abundant, especially the *Carauá*, banded like a coral snake, and the *Macambira* with needle thorns and flower-spikes three feet tall; it is loved by monkeys who, they say, make pic-nics to eat the leaves. The feathery elongated *Catingueiro*, now tender green, then burnished brown, is remarkable near the dense clustering verdure of the rounded *Quixabeira*, and the *Imbuzeiro* with the horizontal boughs, a bush twenty feet high. The *Carahyba* is the monarch of the bush, and its leek-coloured leafage, hung with long bitter pods, and with trumpets of yellow gold, gains beauty seen near the gay red blossom and the velvety foliage of the "Pinhão bravo," and the whitey-green catkins of the thorny *Acacia*, known as the *Jurema preta*. We also remark the black charred bole of the *Paó preto*, by the side of the sweet-scented *Imburana*, hung with flakes of light burnished bronze. The scrub is mostly the hard *Araça-guava* with its twisted wood, and the *Bom-nome*, whose "good name," I presume, results not from an inedible berry, but because it is found useful for spoons. The cattle straying about the bushes toss their heads, snort, and with raised tails dash through the thicket as we approach; they are sleek, clean-limbed,—much more like the wild animal of the African Gaboon than the European model of bull and cow. Thanks to the drift, they find in the dwarf "courtils" more succulent fodder than usual; they suffer, however, when not

penned for the night in the Cahyçára,* from ounces and vamps, and they are sometimes poisoned by the pretty, pink, and innocent-looking blossom, here known as the "Cebolla brava." Finish the picture with clouds of spray and vapour, rising from the abyss, and pouring to leeward an incessant shower of silvery atoms; with the burnished stones, here singularly gloomy, there mirroring the dazzle of the sun-beam; and with gay troops of birds, especially the Tanager, the hyacinthine Ararúna, and the red and green parroquet, darting and screaming through the air, whose prevalent hue is a thin warm neutral tint.

My next visit began at the beginning, and thence we followed down the left bank, stepping from slippery stone to stone, and approaching the channel when possible.† Here the São Francisco, running swift and smooth out of the north-west, escapes from the labyrinth of islands and islets, rocks and sands, blocks and walls which squeeze it, and receives on the left a smaller branch, separated from the main by a dark ridge. The two, leaping and coursing down a moderate incline of broken bed, burst into ragged, tossing sheets of foam-crested wave, and tumble down the first or upper break, which is about thirty-two feet high. This kind of "Rideau Fall" is known as the "Vai-Vem de Cima"—the "upper go and come."‡ The waters are compressed in the central channel by the stone courses rising thirty to fifty feet above them, and are driven into a little cove on the left bank. The mouth of a branch during the floods, now it is a baylet of the softest sand hemmed in by high japanned walls, and here the little waves curl and flow, and ebb again, with all the movement

* Also written "Caïssara," and by Sir J. de Alencar "Caïçara:" he derives it from "Cai," burnt wood, and "Çara," a thing possessing. Thus it means the stakes with fired ends thrust into the ground and forming a cattle "kraal," where careful owners shelter their beasts, and where the careless brand them with the iron once or twice a year.

† The formation of Paulo Affonso renders it a Protean feature changing with every month. I visited it in mid-November, when, according to the guide, the water had risen three to four fathoms above the lowest level.

The arithmetic may be briefly taken from M. Halfeld. The left bank of the gorge, called Mãi da Cachoeira, is 365 palms (261 feet, 7 inches) high, and the depth of

the "kieve," or hollow dug by the falls, is 120 palms (86 feet). The narrowest part of the chasm is 72 palms. The first, or Upper Rapid (Vai-Vem de Cima), is 792 palms, 1 inch (=567 feet, 8 inches) above sea level: and the lowest Rapid (Vai-Vem de Baixo), opposite the Vampire's Cave, is 426 palms, 6 inches (=305 feet, 9 inches). The united height of Rapids and Fall is 365 palms, 7 inches (=261 feet, 11 inches).

The Horseshoe Fall of Niagara is 158 (some say 149) feet high, with a width of 1900 feet, and a discharge of 20,000,000 cubic feet per minute. The American Fall is 162—164 feet high, with a breadth of 908 feet. The total breadth of the bed is 3225 feet, and of the water 2808 feet.

‡ Of these Vai-Vens (also written Vac-vens) there are, as will be seen, two.

of a tide in miniature. I timed and felt the pulse of the flux and reflux, but I could detect no regularity in the circulation. The place tempts to a bath, but strangers must bear in mind that it is treacherous, and that cattle drinking here have been entangled in the waters, from which not even Jupiter himself could save them.

The waters then dashing against the left or south-eastern boulder-pier, are deflected to the south-west in a vast serpentine of tossing foam, and form, a few paces lower down, a similar feature; called by our guide "Half go and come." Here insulated rocks and islands, large and small, disposed in long ridges and in rounded towers, black, toothed, and channeled, and wilder far than the Three Sisters or the Bath and Lunar islands of Niagara, split the hurrying tossing course into five distinct channels of white surge, topping the yellow turbid flood. The four to the right topple over at once into the great cauldron. The fifth runs along the left bank in a colossal flume or launders, high raised above the rest; meeting a projection of rock at the south, it is flung round to the west almost at a right angle. Here the parted waters spring over the ledge, and converge in the chaudière which collects them for the great fall. When the sun and moon are at the favourable angle of 35° , they produce admirable arcs and semicircles of rainbows in all their prismatic tintage from white to red. These attract the eye by standing in a thin arch of light over the mighty highway of the rushing "burning" waters; guides to cataracts, however, always make too much of the pretty sight.

The third station is reached by a rough thorny descent, which might easily be improved, and leads to the water's edge, where charred wood shows that travellers have lately nighted in the place. Turning to the north-east we see a furious brown rapid plunging with strange forms, down an incline of forty-nine feet in half a dozen distinct steps: the flood seems as though it would sweep us away. At the bottom, close to where we stand, it bends westward, pauses for a moment upon the billow-fringed lower lip of the Chaudière that rises snow-white from the straw-coloured break, and then the low, deep, thundering roar, shaking the ground and "sui generis" as the rumbling of the earthquake and the hoarse sumph of the volcano reveal the position of the Great Cataract. The trend is southerly, and the height is calculated to

be 192 feet. The waters hurl themselves full upon the right-hand precipice of the trough-ravine, surge high up, fall backwards, fling a permanent mistcloud in the air, and like squadrons of white horses, rush off, roaring and with infinite struggle and confusion, down the Mãi da Cachoeira to the south-east. The latter is the grandest point of view which we prospected from the table-rock overhanging the fracture.

Paulo Affonso is always sketched from our third station,* where we "realize" an unpleasant peculiarity of his conformation; he has here permitted the eye of man to see the main cataract. A little further down, there is a partial view from above; but the normal central mistcloud curling high and always ascending above the lower lip of the cauldron, veils the depth, and we are not satisfied till we have sighted a Fall from its foot. Now much is left to the imagination, and the mystery is so great as to be highly unsatisfactory. In the depth of the dries it is, they say, possible to climb down a portion of the left wall, and to overlóok the cataract. I carefully inquired whether it was visible from the right, or Bahian bank; all assured me that a branch stream allowed no approach to the trough-ravine, and all were agreed that from that side nothing is visible.† A moveable suspension-bridge, not, I hope, like that of Montmorenci, could be made to span the chasm; wire-ropes fit to bear cradles, could be passed across; or ladders might be let down and act as the winding staircase which leads to the Horseshoe Fall. At present Paulo Affonso is what Niagara was in the days of Père François Piquet: and we can hardly look forward with pleasure to the time when it will have wooden temples and obelisks, vested interests, 25 cents to pay, and monster-hotels.

The next station is that with which I have advised the stranger to begin. Thence he must retrace his steps, the trough up is too rough and broken to be followed. We again crossed the eastern boulder-channel, and walking to the south-east reached, after a

* From this point also the photographs are taken, and they afford but a poor idea of the original. M. Halfeld, besides his vignette, gives two lithographs, the first from our third station, and the second from the Paredão, opposite the Angiquinho, a place which we shall presently visit.

† Travellers with more leisure than I

had, will not take this assertion on trust. The distance from the Porto das Piranhas, where the steamer stops, is only 12 leagues, easily done in two days. And if the "Bahian side" be practicable, it is evidently the place for a flight of steps, cut in the rocky wall of the trough.

few hundred yards, a descent formed by the waters which, in flood-time, sweep over the hollow "Carahyba Camping ground," and course down a stony incline to rejoin the parent flood. We found the bed bone-dry, a slippery surface of bare rock, dark and bright after many a freshet, with here and there steps and deep crevasses. There are stagnant pools and corrie-like holes, green with *Confervæ*, and rich in landshells. These hollows long preserve the rain-water, and though covered with scum-like aquatic growths, they are during the dries, a great resource for cattle. The hands must be used as well as the feet in descending, and the noonday sun will peel the palms.

The zigzag led down to a *Ressáca* or bulge in the left bank of the river. Here the torrent is less terrible, but still violent, as it dashes against the south-eastern wall of the trough. The light colour of the precipice, not grown, like the rest of the trough, with moss, *Bromelia*, and thorn bush, shows that, despite the exceeding hardness of the stone, some part has slipped, and more will slip. Sr. Manuel Leandro assured me that it has not changed since the days of his grandfather and his grandmother.

At the trough-foot we reach a baylet formed by the lower "Go and come" (*Vai-Vem de baixo*), another back-water of the great rushing tide. People fetching water have fallen into it, but have managed to extricate themselves. No Maid of the Mist, however, will in these ages be able to ascend the line of *maël-ströms*. Now the water recovers from the plunge and dive in the abyss beneath the cascade, it continually rebounds, and as we often noticed in the *Cachoeiras* of the upper bed, there is no really level surface; the face seems a system of slightly bulging domes.

The little inclined ramp of loose stones at the bottom of the wall is strewed with lumber and with wood brought down by the last floods; its grinding sound and its crash when floods are high, have been compared with the creaking of the ice at the end of a Canadian winter. Light as pumice-stone, the fragments are rounded off and cropped at both ends by the bruising process, and the working takes curious shapes, cheeses and shuttles, nine-pins and skittles. Our guide picturesquely called the heaps "Cidade de Madeira," a city of wood, and in them I recognized canoe planks and scantling from the Imperial shed.

The slope ends in a cave opening to the west, and known gene-

rically as the "Casa de Pedra," specifically as the "Furna do Morcego," or Vampire's Grot. Its appearance is singular. The entrance, instead of being low, after the fashion of caverns, is a tall parallelogrammic portal leaning a little to the south. Hence it has its Saintess (*uma Santa*), who shows herself at times, and the people have heard martial music, and singing which did not, they judged, proceed from mortal wind-pipe. The arch is formed by a thick table of hard, close-grained granite, spread out as though it had been lava, and a cleavage-line extends to the southern corner. Its walls are sandstone, here hard and compact, there soft and mixed with ochreous iron-stained clay, easily cut in the days when the now shrunken and sunken stream filled the trough-ravine with its *débâcles*.* At present the inundations extend only half-way up the floor, where an "old man" is in process of degradation. The level sole is strewed with bat's guano, and with ashes where the people have attempted to smoke out the blood-suckers. The greatest height is about 90 feet. The eastern wall overhangs, and the honey-combed upper part shows other branch caves still forming, whilst the western retreats at the easy angle of 8° — 9° . I saw no bats in this "Cave of the Winds," this "Devil's Hole;" but the hour of visit was early afternoon, and the plague was probably enjoying its nap. The mouth of the vault has a singular look-out. The fleecy, seething, snow-white torrent, disposed in vorticose-lozenges and ridges, with its spray glittering under the sun like myriads of brilliants, strikes upon a shoulder of polished and intensely black rock, whose parallel and much inclined bands wall the right side of the crevasse. This mass deflects the boiling rapid at nearly a right angle, and sends it roaring between the cliffs of its deep-narrow chasm adown the abrupt redoublings which end its course in the world of waters to the east.

* M. Halfeld gives the dimensions 80 palms (57 feet, 4 inches) tall, \times 40 palms (28 feet, 8 inches) wide, and 444 (318 feet, 2 inches) long. The entrance to the smaller Eastern fissure is 30 palms (21 feet, 6 inches) high, broadening to 60 palms (43 feet) inside. That surveyor elaborately explains the formation of the "Furna." Its line, he says, presents many veins of calcareous spath, of flesh-coloured felspar, and of quartz varying from $\frac{1}{4}$ of an inch to 5 inches in breadth, causing the granite to lose compactness: moreover, it is sometimes

saturated with muriate of soda, from which a little salt is made. The granite shows, it is true, many dykes, some raised above, others sunk below, and others level with the surface; but their thickness is trifling. The rocks also contain lime, hence the quantity of landshells which, dead at this season, strew the ground. But the cave is evidently hollowed out in the sandstone grit, which on the left side of the Lower São Francisco, forms hills and ridges, and which further down alternates with or overlies limestone.

Our last station is upon the "Paredão," lower down than the Vampire's Cave, at the place called "Limpo do Imperador"—the bush having been cleared away for the Imperial visit. There is no shade, and water is far off. A tent and barrels, however, would make all things easy, and a traveller encamped upon this Bellevue would have beneath his eyes by night as well as by day the most beautiful if not the grandest scenery of Paulo Affonso. Here he stands on a level with the stream above the Upper Rapids, and on 300 feet of perpendicular height over the water, which dashes curdling and creaming below. To the westwards the vision strikes full upon the small but graceful Angiquinho branch, which is the American Falls compared with the Horseshoe, and which reminds the traveller of the tall narrow Montmorenci.* This offset is the furthest line on the right side of the river, in which, about the Tapéra of Paulo Affonso, a mass of long islands precedes the narrows and the rapids. It encloses an "Iris Island," a crag which may easily be confounded with the mainland. It is, however, capped with tree and grass, kept green as emerald by the ceaseless drift, and made remarkable by the brown plain forming the distance. Here again the still and silent picture around heightens the effect of the foaming, rushing water. The flood rolls headlong over its own shelf of brown based on jet-black rock, seen in the walls which here jut out and there retire. Dashed to pieces by the drop, it shows about the centre, with the assistance of a projecting rock, at this season clearly visible, a fall within a fall. Puffs of water-douche, looking as if endless mines were being sprung, rise to half its height, and the infinite globules, "spireing up" in shafts, repeat the prismatic glories of solar and lunar rainbows. At its foot, from the spectator's right hand, or from north to south, a section of an arch represents the terminal part of the mysterious cataract, whose upper two-thirds are hidden by a curtain of rock. This, the main stream, impinges almost perpendicularly upon the right-hand wall of the trough-ravine, and the impetus hurls it in rolls and billows high up the face to be thrown back shattered, and to add a confusion more confused to the succeeding torrents. But, subject to the eternal law of gravitation, a sinuous line perforce undulates down the crevasse, which gradually widens, and which puts out buttresses from the right and left.

* The height of Montmorenci is about 250 feet by 50 feet of breadth.

Calmed by the diminished slope, it meets the tall cliffs upon which we stand, and wheeling from north-west to south-west, it eddies down the windings of the ravine, which soon conceal it from the sight. The effect is charming when the moon, rising behind the spectator, pours upon the flashing line of cascade and rapid full in front, a flood of soft and silvery light, while semi-opaque shadows, here purple, there brown, clothe the middle height, and black glooms hang about the ribs, spines, and buttresses of the chasm-foot.

Not the least interesting part of Paulo-Affonso is this terminal ravine, which reminded me of the gorge of Zambezian Mosiwatunya, as painted by Mr. Baines. It has given rise to a multitude of wild fables, especially to the legend of the under-ground river, an Alpheus, a Niger, a Nile, that favourite theme with the "old men."* The black sides, footed by boulders which the force of the flood has hurled in heaps, and in places cut by small white streams, preserve their uniformity, and wall in the stream as far as the Porto das Piranhas, forty-two geographical miles below the cataract.† Moreover the elevation profile shows below the actual cataract, a kieve or deep hollow, and a long succession of similar abysses, prolonged to the same point, and gradually diminishing in depth, the effect of a secular filling in. Niagara undermining the soft shales that support a hard structure of limestone some ninety feet thick, has eaten back seven miles from the escarpment known as Queenstown Heights. It is supposed to have expended 4000 years in reaching its present position, and to be receding at the rate of a foot per annum. Here we find a similar retreat of the waters. According to the guides, a huge mass of stone above the Chaudière formed an arch under which birds built their nests. This disappeared like the old original "Fall

* The *Noticias Ultramarinas* of 1589 (Chap. 20) makes the Sumidouro, or sink, 80—90 leagues above the Cachoeira, which was then apparently not named. The classical geographical romance soon spread afar. Frei Rio Giuseppe de Santa Theresa (*Istoria delle guerre del Brazil*) wrote "dopo de aver corso diciotto giornate di paese dentro di cui si nasconde per lo spazio di dodici leghe." Southey (*III. i. 44*) borrows from the Patriota and Casal with reasonable correctness, he alludes to the "rapids and falls . . . one of such magnitude that the spray is visible from the mountains, six

leagues distant, like the smoke of a conflagration."

† It is found with breaks to the Pão de Assucar, distant sixty-three miles. Of course these are rude estimates, which may have an error of two miles. From Paulo Affonso to Porto das Piranhas, the perpendicular and inclined walls that hem in the fiercely-dashing stream, are often 800 palms (570 feet high). At the Cachoeira da Garganta (of the Gorge), nine miles below the cataract, the breadth of the stream is only 85 palms (61 feet), and the height of the spray is 350 palms (250 feet).

Rock" about ten years ago, and since that time they say the Zoadão, or roar of Paulo Affonso, has not been so loud. Applying, therefore, the rule of the Northern Cataract, we cannot assign to the King of Rapids an age under 2400 years.

* * * * *

My task was done. I won its reward, and the strength passed away from me. Two days of tedious monotonous riding led to the Porto das Piranhas. The steamer had just left it, but a hospitable reception awaited me at the house of Sr. Ventura José Martins, agent to the Bahian Steam Navigation Company. My companion hurried away to catch the American mail at Pernambuco. I descended the lower Rio de São Francisco more leisurely, under the guidance of Sr. Luis Caetano da Silva Campos of Penedo, whose amiable Senhora made me feel at home. Whilst delayed at "the Rock" I met my excellent friend Dr. A. Moreira de Barros, then President of Alagoas, and visited him at his capital, Maceiô. Thence, with the aid of Mr. Hugh Wilson, I found my way to Aracajú and Bahia, and finally I returned viâ Rio de Janeiro to Santos (São Paulo), alias Wapping in the Far West.

APPENDIX.*

EXTRACT FROM THE REVISTA TRIMENSAL OF THE INSTITUTO HISTORICO E GEOGRAPHICO BRASILEIRO, RIO DE JANEIRO, JULY 21, 1865.



Historical account of a large, hidden, and very ancient city, without inhabitants, discovered in the year 1753.

In America
in the interior
adjoining the
Master of *Can*
and his followers, having wandered over the desert country (*Sertoões*) for ten years in the hopes of discovering the far-famed silver mines of the great explorer *Moribega*, which through the fault of a certain governor were not made public, and to deprive him of this glory he was imprisoned in *Bahia* till death, and they remained again to be discovered. This news reached *Rio de Janeiro* in the beginning of the year 1754.

After a long and troublesome peregrination, incited by the insatiable greed of gold, and almost lost for many years in this vast Desert, we discovered a chain of mountains so high that they seemed to reach the ethereal regions, and that they served as a throne for the Wind or for the Stars themselves. The glittering thereof struck the beholder from afar, chiefly when the sun shone upon the crystal of which it was composed, forming a sight so grand and so agreeable that none could take eyes off these shining lights. Rain had set in before we had time to enter (in the itinerary) this crystalline marvel, and we saw the water running over the bare stone and precipitating itself from the high rocks, when it appeared to us like snow struck by the solar rays. The agreeable prospect of this (*uina*) shine
. of the waters and the tranquillity
. of the weather, we resolved to investigate this admirable prodigy of nature. Arriving at the foot of the ascent without any hindrance from forests or rivers, which might have barred our passage, but making a detour round the mountains, we did not find a free pass to carry out our resolution

* Translated by Mrs. Richard Burton, who begs indulgence, on account of this report having been written in old Portuguese by rude explorers, and therefore very difficult to render into English. All the lines that are not filled in, are illegible from the age and decayed state of the original MS.

to ascend these Alps and Brazilian Pyrenees, and we experienced an inexplicable sadness from this mistake.

We "rached" ourselves with the design of retracing our steps the following day. A negro, however, going to fetch wood, happened to start a white stag which he saw, and by this chance discovered a road between two mountain chains, which seemed cut asunder by art rather than by nature. With the overjoy of this news we began the ascent, which consisted of loose stones piled up, whence we thought it had once been a paved road broken up by the injuries of time. The ascent occupied three good hours, pleasantly, on account of the crystals, at which we wondered. We halted at the top of the mountain, which commanded an extensive view, and we saw upon a level plain new motives to rouse our admiration.

We discerned about a league and a half from us a large settlement, whose extent convinced us that it must be some city dependent upon the capital of the Brazil. We descended soon to the valley, with the precaution it might be in such a case, sending explor gate the quality and that they should take good notice chimneys, this being one of the evident signs of settlements.

We waited for the explorers during two days, longing for news, and only waited to hear cocks crow to be certain that it was peopled. At last our men returned, undeceived as regards there being any inhabitants, which puzzled us greatly. An Indian of our company then resolved at all risks, but with precaution, to enter; but he returned much frightened, affirming that he did not find nor could he discover the trail of any human being. This we would not believe, because we had seen the houses, and thus all the explorers took heart to follow the Indian's track.

They returned, confirming the above-mentioned deposition, namely, that there were no inhabitants, and so we determined all to enter this settlement well armed and at dawn, which we did without meeting any one to hinder our way, and without finding any other road save that which led directly to the great settlement. Its entrance is through three arches of great height, and the middle one is the largest, whilst the two side arches are less. Upon the largest and principal we discerned letters, which from their great height could not be copied.

There was one street the breadth of the three arches, with upper storeyed houses on either side; the fronts of carved stone already blackened; so inscriptions all open (d)oor are low of ma(ke) *nas* noting that by the regularity and symmetry with which they are constructed it appeared to be one long house, being in reality a great many. Some had open terraces, and all without tiles, the roofs being some of burnt bricks and others of freestone slabs.

We went through some of the houses with great fear, and nowhere could we find a vestige of personal goods or furniture which might by their use or fabric throw any light on the nature of the inhabitants. The houses are all dark in the interior; there was scarcely a gleam of light; and as they are vaulted, the voices of those who spoke re-echoed till our own accents frightened us.

Having examined and passed through the long street, we came to a regular square, and in the middle of it was a column of black stone of extraordinary height and size, and upon it was the statue of an average-sized man, with one hand upon his left haunch, and the right arm extended, pointing with his forefinger to the North Pole. In each corner of the said square was a needle (obelisk ?), in imitation of that used by the Romans, but some had suffered ill-usage and were broken, as if struck by thunder-bolts.

On the right hand of this square was a superb edifice, as it were the principal house of some Lord of the land. There was an enormous saloon in the entrance, and still from fear we did not investigate all the hou(ses) being numerous and the *retret* *zerão* to form some *mara* we found o(ne) mass of extraordinary (per)sons had difficulty in raising it. The bats were so many that they attacked the people's faces, and made such a noise that it astonished them. Upon the principal portico of this street was a figure in demi-relief carved out of the same stone, and stripped from the waist upwards, crowned with laurels. It represented a young figure, and beardless. Beneath the shield of the figure were some characters, spoiled by time. However, we made out the following. (See the Plate, inscription No. 1.)

On the left side of the said Square is another edifice, quite ruined ; but from the vestiges remaining, there is no doubt that it was once a temple, for part of its magnificent frontispiece still appears, and some naves and aisles of solid stone. It occupies a large space of ground, and on its ruined walls are seen carvings of superior workmanship, with some figures and pictures inlaid in the stone, with crosses and different emblems, crows and other minutiae, which would take a long time to describe.

Follow this edifice—large portions of the city totally ruined and buried in large and frightful openings of the earth, and upon all this ground not a blade of grass, tree, or plant was produced by nature, but only heaps of stone and some coarse rough works, by which we judged *verçao*, because still amongst *da* of corpses which is part of this unhappy *da*, and forsaken perhaps on account of some earthquake.

In front of the said square runs rapidly a mighty and broad river, which had spacious banks and was agreeable to the sight. It might be from 11 to 12 fathoms broad, without considerable turnings, and its banks were free from trees and timber which the inundations usually bring down. We sounded its depth and found in its deepest parts from 13 to 16 fathoms. On the further side of it are most flourishing plains, and with such a variety of flowers that it would appear as if nature was more bountiful to these parts, making them produce a perfect garden of Flora. We admired also some lagoons full of rice, of which we profited, and likewise innumerable flocks of ducks which breed in these fertile plains, and we found no difficulty in killing them without shot, but caught them in our hands.

We marched for three days down the river, and came upon a cataract which made a fearful noise from the force of the water and the obstacles in its

bed, so that we thought the mouths of the far-famed Nile could not make more. Below this fall the river so spreads out that it appears to be the great ocean. It is full of peninsulas covered with green turf, with a sprinkling of trees, which make *davel*. Here we found in default of it if we (mu)ch variety of game (o)ther many animals bred ; there being no huntsmen to chase and persecute them.

To the east of this waterfall we found several deep cuttings and frightful excavations, and tried its depth with many ropes, which, no matter how long they were, could not touch its bottom. We found also some loose stones, and, on the surface of the land some silver nails, as if they were drawn from mines and left at the moment.

Amongst these caverns we saw one covered with an enormous stone slab, and with the following figures carved on the same stone, which apparently contains some great mystery. (See the inscription No. 2.) Upon the portico of the temple we saw others also, of the following form. (Inscription No. 3.)

About a cannon-shot from the village was a building as it might be of a country-house, with a front 250 paces long. The entrance was by a large portico, and we ascended a staircase of many coloured stones which opened into an immense saloon, and afterwards into 15 small houses, each with a door opening into the said saloon, and each one bore its own water spout *a* which waters, and adjoining *mão* in the external courtyard colonnade in a cir *ra* squared by art, and hung with the following characters. (See the inscription No. 4.)

After this wonder we descended to the banks of the river hoping to discover gold, and without trouble we found rich "pay-dirt" upon the surface, promising great wealth of gold as well as of silver. We wondered at the inhabitants of this city having left such a place, not having found with all our zeal and diligence one person in these Deserts who could give any account of this deplorable marvel, as to whom this settlement might have belonged. The ruins well showed the size and grandeur which must have been there, and how populous and opulent it had been in the age when it flourished. But now it was inhabited by swallows, bats, rats and foxes, which fattened on the numerous breed of chickens and ducks, and grew bigger than a pointer-dog. The rats had such short legs they did not walk, but hopped like fleas ; nor did they run like those of an inhabited place.

From this spot a companion left us, who, with some others, after 9 days' good march, sighted at the mouth of a large bay formed by a river, a canoe carrying two white persons, with loose black hair, and dressed like Europeans, a shot as signal, in order to *ve* to fly or escape. To have hairy and wild *ga*, and they all curl up and invest

One of our companions, called João Antonio, found in the ruins of a house a gold coin, round, and larger than our pieces of 6\$400. On one side was the

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