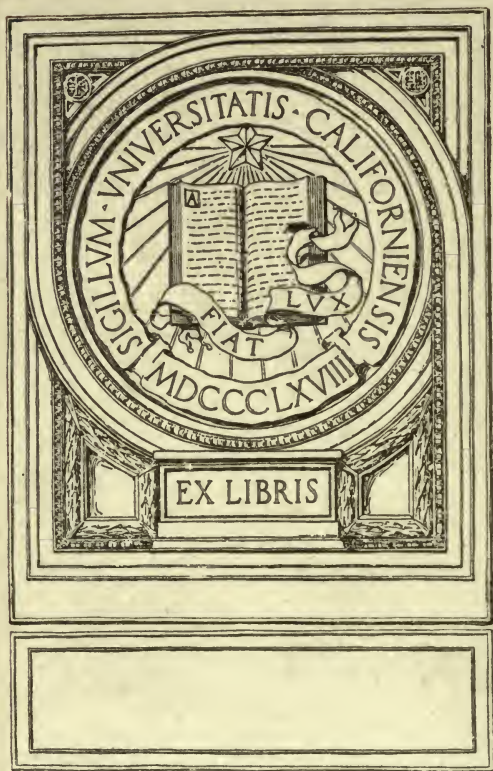


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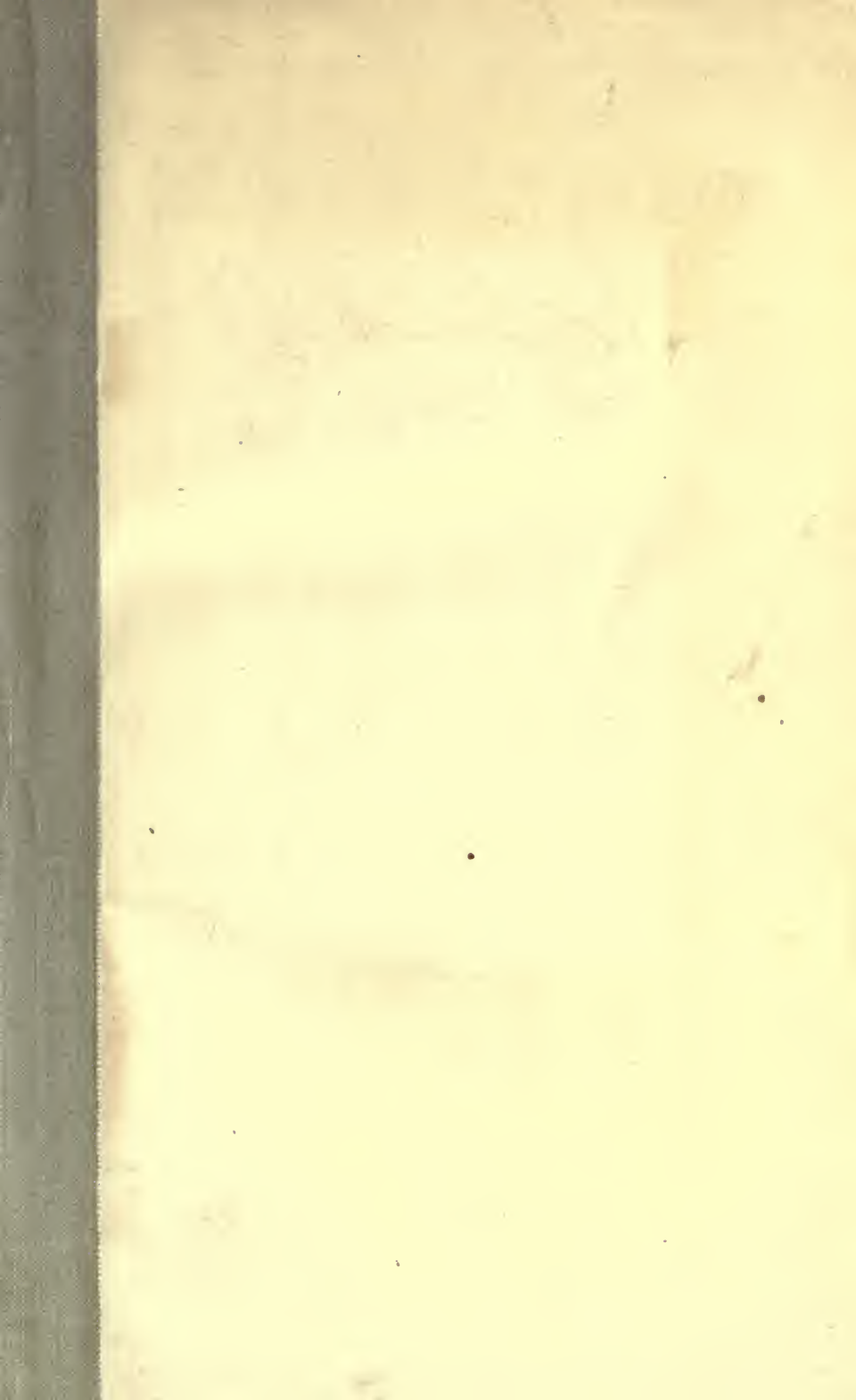
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BY

PERCY F. MARTIN, F.R.G.S.

AUTHOR OF "THROUGH FIVE REPUBLICS OF SOUTH AMERICA,"

"MEXICO OF THE TWENTIETH CENTURY," "SALVADOR OF THE TWENTIETH CENTURY,"

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A FOREWORD

BENJAMIN DISRAELI once observed that the author who speaks about his own books is almost as bad as a mother who talks about her own children; nevertheless, I am of opinion that something may and should be said here—not as an advertisement, but as a warning—respecting the nature and the purpose of this volume.

I do not wish any expectation to be aroused which cannot be realized; and, therefore, let me at the outset indicate to my readers what they will *not* find within these pages. Firstly, they will seek in vain for any lengthy reference to “Ancient Peru.” Other writers, far more capable than I, have dealt with this fascinating subject, and the list of works upon the Land of the Incas is so ample that the market may be considered as sufficiently, if not over, supplied. Secondly, I have carefully refrained from indulging in political history for two reasons: (1) I am inclined to agree with the dear old pessimist, Voltaire, that “history being little else than a picture of human crimes and misfortunes,” it would be out of place in a book which is primarily intended to be useful to the traveller, the merchant, and the financier; (2) I consider it little less than “an international impertinence,” as Bismarck designated the Monroe Doctrine, for foreigners to discuss and comment upon the internal affairs of the countries in which they may happen to find themselves, either temporarily or permanently, located.

I have not hesitated to comment, on the other hand, upon our own politics, so far as they relate to our commercial relations with Peru and other South American countries; because I have found that there are conditions confronting us as a nation which cannot, and should not, be passed by without some reference. I know neither politics nor prejudices; but I have a country—a country of which I am not only very fond, but very proud. I want to see that country maintain her place in the front rank of the commercial and industrial world; to march always as leader, and not as a humble follower.

My anxiety is to awaken some interest among the thinkers in Great Britain, by showing to them—as far as my modest abilities will permit—some of the many diplomatic errors which our responsible rulers, of both political parties alike, have committed, and to assist in urging the demand that these errors be no longer perpetuated.

For the rest, I leave my book to speak for itself. I trust that it may be deemed not so bad, but that something good may be found in it.

The Republic of Peru to-day is upon the eve of a great development, in comparison with which all previous commercial movements in this part of the world will probably appear insignificant. A recently completed, long and interesting tour through the principal agricultural, mining, and manufacturing districts of the country convinces me that the Republic, now that internal and external peace is secured, is bound to advance to the very front rank among the Latin-American States as a productive and commercial factor.

Not alone is it possessed of practically every kind of mineral, of vast agricultural territories and of immense natural forests, but it is endowed with a climate which

is, generally speaking, so mild and equitable in most of the districts that human existence is both exhilarated and benefited by being passed in it.

Of the immensity of Peru's resources in other directions there can be no more question, and day by day will doubtless offer opportunities for their more intelligent and systematic development. Already, some \$35,000,000 (£7,000,000) of North American capital has found its way to Peru, while British capital may be put conservatively at another £20,000,000. Of French and German, Italian and Spanish capital there exists also a considerable amount; with a hundred times as much to follow when the opportunity arrives.

The foreign commerce of any nation is usually accepted as a fair and convincing proof of its industrial progress, and in this respect Peru has offered a striking example of national prosperity. In the year 1897, for instance, the imports of the Republic were \$8,000,000 and the exports about \$14,000,000. Considering the immense territory which is comprised in the Republic, even when shorn of her chief provinces, Tacna and Arica, now owned by Chile, its population and its resources, a return like this is small enough. As soon as foreign capital commenced to come into the country, which synchronized with the introduction of monetary reform, both the imports and exports advanced, until, in 1906, we find them standing at the much more convincing figures of \$25,000,000 of imports and \$28,500,000 for exports. During this period the United States exports increased from \$1,000,000 to nearly \$5,000,000, and the imports from \$700,000 to nearly \$2,500,000. In 1907, out of a total import trade amounting to £6,235,550, Great Britain secured £1,634,129, while the United States came an excellent second with £1,184,668. Germany actually showed a

diminution in her trading figures, those for 1907 being £893,434, as against £914,239 for 1906. It is thus clear that it is the United States that we have most to fear as competitors in Peru, and these statistics are all the more important to British manufacturers, since they really form the "handwriting on the wall," serving to show in eloquently convincing language what the results of this trading will be when once the Panama Canal is opened, and the United States are brought many thousands of miles nearer by direct transportation with the Latin-American States.

In the following pages I have endeavoured to show the Republic as it is to-day—"The Twentieth Century Peru"; also the commercial and industrial Peru as it may be expected to appear a few years hence, when some of the many natural resources of the country have been developed more fully, and when a few of the numerous opportunities which the Republic offers to capitalists, merchants, and settlers have been put to the test. The country is proceeding slowly, but very surely, upon the road to progress. "To climb steep hills requires slow pace at first."

In one important particular Peru has always made a plucky attempt to keep pace with the rest of the civilized world, and that is by means of its internal and coastal transportation. Various successive Governments have taken up the task of railway-building with equal avidity, and no political question however acute, no financial restriction however severe, has been permitted to interfere with the carrying-out of a programme which has been recognized by all parties alike as the one and only means destined to bring Peru into line with its South American sister-Republics. No one who has failed to visit this part of the globe can form any accurate idea of the physical difficulties with which railway constructors are faced; and none but

those who are accustomed to meet with and to overcome difficult engineering obstacles would be inclined to persevere when confronted with the apparently impossible problems of surmounting stupendous mountains, bridging uncontrollable rivers, and piercing endless rocky fastnesses. The Republic claims, with good reason, to have been the first State in South America to have a steam tramway. Chile would rob her of this claim, as she has taken from her the valuable guano deposits and the still more precious nitrate fields; but I think that the question at issue can best be decided by the following specific details: Peru built and opened for traffic the Lima-Callao steam tramway in the year 1848, whereas the first tramway in Chile, from Caldera to Copiapó, was opened on July 29, 1851.

The flat portion of Peru is insignificantly small in comparison with the mountainous regions; but, nevertheless, the territory of the Republic is moderately well supplied with railroads, built almost entirely with British capital loaned to the Peruvian Government. I have not hesitated to devote a considerable portion of my space—in fact, three entire chapters—to the question of transportation in Peru. It is the key to the future economic situation.

The total length of railway track in the Republic to-day is about 1,560 miles (roughly speaking), apart from several private lines, which are the property of different mining and industrial companies. The three principal systems, aside from the many private concerns and short coast lines, to all of which some reference has been made in the following chapters, are the Southern Railway, the Central Railway, and the Guaqui-La Paz Railway. These lines are under the management of the Peruvian Corporation, Limited, a British joint-stock company which, as representa-

tive of the holders of bonds of the former foreign debt of Peru, in 1900 took over the control of the lines until 1956. Although the smallest of the three groups, the Guaqui-La Paz Railway is one of the most important, not alone because of its forming the connecting link between the Southern Railway, on the coast, and the Bolivian capital of La Paz, 14,000 feet above the level of the sea, but also on account of its being at present one of the two lines of railroad which bring the Capital of the latter-named Republic into communication with the sea.

Neither the Southern nor the Antofogasta-Bolivia Railway will be long left in possession of this monopoly, since the Arica-La Paz Railway, now in construction, is destined to prove an important factor in future competition.

Like most of the other South American States, Peru has been heavily handicapped in the past by the absence of good roads, or, indeed, of any roads at all. When the Spanish Conquerors came, so history relates, they found a number of excellent paved highways running from a common centre, like the spokes of a wheel, to practically every part of the Inca Empire, and traces of them are to be found in many parts of the country to-day. But the Spanish, in their greedy search for gold and in their merciless persecution of the unfortunate Indians, seem to have overlooked the primary duty of all pioneers, which is to open up and to maintain the arteries of internal communication. Even after Spanish rule came to an end in Latin-America, the newly-emancipated States were too closely engaged upon making war with one another and in settling their own numerous internal troubles to think of improving their highways; so that it was nearly forty years after the throwing-off of the Spanish yoke, when the Latin-American States seriously com-

menced to construct roads into the interior of their vast domains.

Among the most backward has been Peru, and the Republic is suffering from the oversight to-day. Roads there are, and some remarkably good ones; but in comparison to the size of the country the Republic is sadly deficient in internal transportation facilities. Those which she enjoys are almost entirely the result of foreign enterprise and capital, but it is satisfactory to know, at least, that the present Government is alive to the importance of improving both its coast-roads and its railway communications, and that every effort is being made to open up the country by these means.

Day by day shows something in this direction either to have been accomplished or commenced; and since, as Gibbon tells us, the civilization of a country may be best judged by the number and condition of its roads, Peru will during the present century have earned a high place among such civilized States.

P. F. M.

October, 1911.

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PERU OF THE TWENTIETH CENTURY

CHAPTER I

Physical features—The coastal line—Ports and harbours—Different regions—The sierra—The montaña—Lake Titicaca—Earthquakes—Rivers—Amazon—Navigation—Volcanoes—Misti—Forests—Productive trees—Rubber—Olive—Flora—Fauna—Pisces—A butterfly-hunter's paradise.

It would be interesting to know what were Francisco Pizarro's exact thoughts as he approached the long coast-line of Peru upon which, after many years' eager ambition and deep scheming, he first cast eyes in the month of January of 1520.

For long the ambitious Spaniard had determined to try his luck south of Panama, where he had fought and bled, but had gained small personal advantage; he had been one of Vasco Nuñez de Balboa's followers, when, in 1509, that distinguished explorer discovered the Pacific Ocean; he had lent his good right arm and his shrewd advice to the service of the Spanish King, but throughout he had remained personally unrecognized and unrewarded.

Then his subtle brain conceived the plan of an expedition carried out upon his own account; in conjunction with the very un priestly priest—Hernando de Luque—and the soldier of fortune, Diego de Almagro, he set out in 1524 for Peru.

Pizarro actually reached the shores, but could do no more than look at them longingly from afar, since he was devoid of equipment of any kind, ill in health and accompanied by none but uncongenial and quarrelsome companions.

So the future conqueror turned back to Panama; journeyed thence to Spain, and having there collected some more and trusty followers in the persons of 200 Spanish soldiers, and being financed by the Spanish King himself, he once again turned his ship's prow towards the land of the Incas—the existence and richness of which he now knew to be no fable. For the first time Pizarro landed upon its unprepossessing shores in September, 1530, his disembarkation taking place at Tumbes.

Approaching the shores from the more tropical and scenically beautiful Panamanian coast, the Peruvian country seems to the traveller both desolate and barren to a degree. But it is neither one nor the other, for a fairly considerable population inhabit these regions, as in the early days of the Spanish Conquest, while a few miles inland there abound numerous fertile valleys and wooded ridges, which impart a wholly different physical appearance to the country.

The exact geographical position of the Republic of Peru is between the Equator and the Tropic of Capricorn, on the western coast of South America, between the parallels of latitude $1^{\circ} 29'$ north of the equatorial line, and $19^{\circ} 12' 30''$ of south; also between the meridians $61^{\circ} 54' 45''$ and $81^{\circ} 18' 39''$ of longitude, west of Greenwich. The superficial area of the country is 500,000 square miles according to some geographers, but the Peruvians themselves claim 1,322,000 square kilometres, which would be equal to 713,675 square miles, including various islands and lakes. To-day, the coast-line measures over 1,200 miles in length, but

before the war in Chile it extended to 1,300 miles. The physical regions of the country may be divided into three separate groups—the coast, the *sierra* (or mountain), and the forest (*montaña*). The population may be conservatively put at 4,500,000, or about 6·4 to the square mile.

Ports and harbours in Peru are many, but there are few which can be classed as really good. In this respect the country is not very fortunate, there being but few protected anchorages, while the headlands are generally abrupt and lofty. The islands which dot the coast are barren and rocky; but they afford excellent accommodation for the myriads of sea-birds who provide the valuable guano deposits which are used for fertilizing.

The coastal region may be subdivided from north to south into five different sections: (1) Piura; (2) Lambayeque and Truxillo; (3) Santa; (4) Lima to Nasca; (5) Arequipa and Tacna.

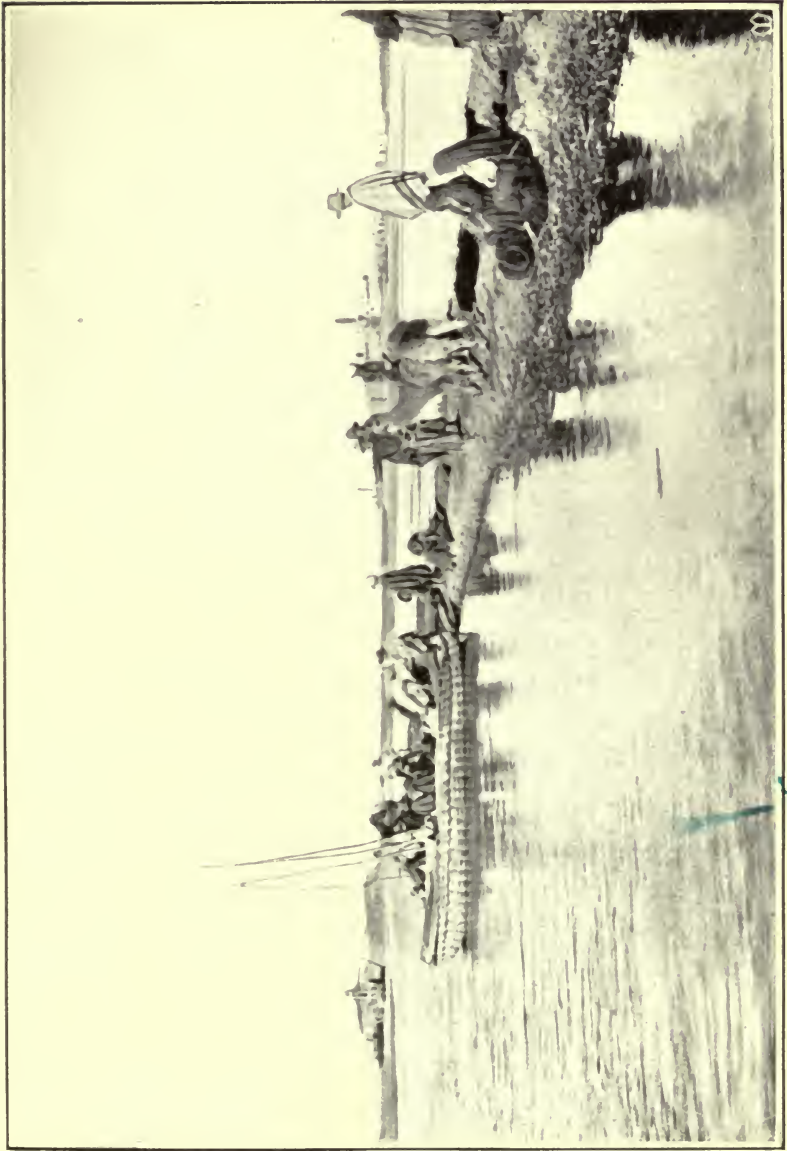
If the country is not blessed with many good ports, it is extremely well provided with rivers, beautiful scenically and valuable commercially. There are some forty-six of these in the Pacific system, apart from the considerable number contained in the Lake Titicaca and the Amazon regions. Altogether, Peru can boast of nearly 8,500 kilometres of navigable rivers; and even at low water they are open to traffic by means of shallow-draught steamers. The Ucayali River alone is navigable for 1,000 kilometres, and the Amazon (in the Peruvian zone) for 680 kilometres.

Usually speaking, the rivers flowing into the Pacific rise in the *sierra* between the coast and the central Andean ranges. The principal waterways are the Tumbes, the Chira, the Piura, the Santa, and the Rímac, while nearly half a hundred other streams have important influence upon the country through which they course. Those rising in the part east of the

central Cordillera, are all tributaries, more or less remote, of the Amazon River. But the ultimate head of that magnificent waterway rises in the *sierra* in 11° south latitude, having its source in the small lake, Lauri-Cocha, and flowing north-west nearly parallel with the Pacific Coast. It drains the western slope of the central range, and after a course of 4,000 miles, it reaches the Atlantic. The affluents of the Amazon, which is also called the Marañon, constitute a vast system of inland navigation-waterways in the forest region. There are the Perené, the Ucayali, the Huallaga, the Paucartambo and the Madera.

Of the famous and extensive body of water Lake Titicaca much might be written, since it is not only the largest but the highest of its kind in the world. Its length is 120 miles, and its width 60 miles; it lies in a basin 300 miles long and 100 miles wide, the elevation above sea-level being no less than 12,545 feet. Naturally, the temperature can be very cold at times; and I have shivered on these waters as I have done nowhere else, although the sun has been shining brilliantly overhead. There is a regular service of steamers running under the auspices of the Peruvian Corporation, the embarking and disembarking points being Guaqui and Puno, upon the Bolivian and Peruvian sides of the lake respectively. To anyone who had the time to spare, Lake Titicaca offers great temptation to exploration. It is so intimately associated with the early Inca period, and it is so steeped in fascinating tradition, that one might—were the spirit amenable—devote many days and even weeks to studying this unique sheet of water and its neighbourhood with both profit and pleasure. One day I hope that this congenial and attractive task may be mine—at least in part.

Nature has, to some extent, compensated Peru for



LAKE TITICACA, THE HIGHEST BODY OF WATER IN THE WORLD.



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the absence of any particularly fine harbour by providing an exceptionally pacific sea, a comparatively rockless coast, and a complete absence of dangerous and sunken reefs and invisible shoals. The movement of the sea, if occasionally somewhat unpleasant for those ships which must anchor outside for any length of time, on account of the swell which sometimes becomes pronounced, is nevertheless very regular. There are no violent storms to be apprehended, although the wind, during certain months of the year, can prove very chilly and inhospitable. The ocean current comes up from the South Pole, and the waves have an average temperature of 7° in excess of that of the sea itself, and it is this, no doubt, which contributes to the cooling of the atmosphere. This current is known by various names—"Humboldt" (after the eminent German explorer, who is said to have identified it), the "Antarctic," and "Peruvian." It has a breadth of 150 miles and a velocity of 20 miles in the twenty-four hours, running up the coast from south to north along the entire extent.

During the summer months there generally occurs along this wide stretch of even and very sinuous coastline an ocean current running in an opposite direction to that already mentioned, and which is supposed to be a prolongation of the equatorial current, which, at the altitude of 5° south latitude, divides in the form of a wedge into two branches—namely, the greater current of 150 miles width, and the lesser, which takes the direction of the north-west.

I have referred to the many large and small rocky islets which are found along the coast. I may add that none of these are inhabited. The most suitable, on account of the immense guano deposits which they once possessed, and still, to some extent, contain, are the Lobos de Afuera, Lobos de Adentro, and the

Guañape Islands, on the Northern Coast; the Chincha Islands, consisting of three different groups—the North, the Central, and the South, all in the Central region; San Lorenzo Island, about six miles to the south-west of Callao, and a few unnamed rocky islets scattered about up and down the long coast-line.

Were time and money to be devoted to the close study of the larger Peruvian rivers, I am of opinion that many of them might be converted into safer and surer means for transportation; and where steamers can now proceed for hundreds of kilometres only, they might be enabled to journey for thousands. Take, for instance, the Amazon—or, as it is also called, the Marañon—the Putumayo, the Ucayali, the Purús, the Igaraparaná, the Lower Ucayali, Yavarí, the Madre de Dios, the Aquiri, the Morona, and the Napo. Steamer and sailing-craft traffics are conducted here for the greater part—say at least nine months—of the year; but with continual attention to dredging and some engineering improvements, which, if costly, could easily be effected, navigation might be carried on for the whole of the twelve months.

Steamers of 6 ~~mille~~metres (20 feet) draught can proceed at high-water down the Lower Ucayali for at least 1,400 kilometres; down the Marañon, as far as the port of Limon, for 780 kilometres; down the Napo, as far as Aguarico, for 900 kilometres; down the Purús, from Labrea to the Catay, for 1,540 kilometres; and down the Putumayo, up-stream from the Peruvian boundary, Igaraparaná, for 330 kilometres.

Even at low water traffic is carried on upon the Lower Ucayali, as far as Contamana, for 1,000 kilometres; from Marañon to port Limon, for 780 kilometres; and on the Amazon, for 680 kilometres. Altogether the Peruvian rivers, during the low-water season, will carry steamers of from 4 to 8 feet draught

for a distance of 2,720 kilometres, and steamers of from 2 to 4 feet, for 4,980 kilometres; while the smaller rivers are open at most times to canoes and small row-boats.

Upon practically all of these waterways the scenery is marvellously beautiful. Nature is seen here in her most entrancing garb and most bewildering colouring—such trees, such ferns, such flowers; and, alas! such mosquitoes and other creeping, crawling, stinging things!

It is in Peru that the superb Cordilleras of the Andes are found in their most majestic forms, three separate ranges, one more imposing than the other, stretching their chains around and across the country in vast links, separating the various watercourses and breaking up the fertile lands into valleys of unequal length and width, but of uniform fairness, their own peaks now soaring into the skies and again sinking to considerably below the perpetual snow-line, but always impressive and frequently awe-inspiring. Truly, as Ruskin has told us, "Mountains are the beginning and the end of all natural scenery," and nowhere does one realize this more fully than in the Peruvian Andes.

Of volcanoes the country may likewise claim a few well-known specimens, such as Tutupaca, which exhibits two fine peaks and one of which last erupted in 1802; Ubinas and Huaynaputina, which, with the first named, are all in the Province of Moquegua. Then there are the magnificent Misti, overlooking and even threatening the city of Arequipa; the Coropuna, which has not yet been correctly measured, but which is declared by some geographers to be the highest of all the Andean peaks; the Hachatayhua and the Candarave, or Yacumani. All of these are in the Western Cordilleras; while the one exception is the

Apucanachuay, which is on the Eastern range, and has a crater rising to the stupendous height of some 4,220 metres (about 13,000 feet). A superb view of this giant can be obtained by travellers passing along the road near Tres Cruces, descending from the Department of Cuzco to the valleys of the Paucartambo.

In a country so plentifully supplied with volcanoes, it is not surprising to hear of frequent earthquakes, with a record of some few bad ones among them. Indeed, these visitations seem to have been of greater violence in this part of the world than any other, if one may judge of the awful destruction occasioned, first at Callao and Lima in 1746, and subsequently at Arequipa in 1868. The latest visitation of the kind was experienced in May, 1877, when the whole of the southern part of the Republic was more or less affected.

The *montaña*, or forest, region, which is abundantly watered by periodical rains, is very extensive, and here the young Republic is possessed of a totally untouched reserve of timber wealth, which one day will become a precious asset. The belt of forests—not merely “woods,” but dense, tropical forests, full of magnificent trees, such as ebony, mahogany, cedar, hardwood, and practically every tropical tree or plant known in the botany of South America—stretches from the eastern slopes of the Cordillera as far as the frontiers of Bolivia and Brazil. It is estimated that these same forest lands constitute fully two-thirds of the total surface of Peru. The most valuable trees hitherto have been found in the rubber (*castilloa elástica*) and the olive (*olea europæa*), both of which will undoubtedly be much more generally cultivated in the future.

It may not be out of place to mention here that some sample olives grown in Peru were sent from

llo to the Paris Exhibition, and were there awarded a gold medal. Much might be done in the direction of both growing the tree and using the oil for commercial purposes. There is a continual demand for the article, but the Peruvians do not produce anything like enough for their own requirements, and it must be, therefore, many years before olive-oil can figure in the list of foreign exports to any extent.

But this is only one of numerous industries which are in their infancy, and need but enterprise and the necessary capital to convert them into permanently profitable undertakings. Fruit cultivation of all kinds should pay those who pursue it intelligently; for while the Peruvians are great consumers of fruit, they put themselves to very little trouble to cultivate it. But they will buy it eagerly from those who do.

With the exception, perhaps, of Colombia and Venezuela, I know of no country in the world where a more varied and beautiful *flora* and *fauna* can be found than in Peru. The latter alone—according to the Englishman, William Mason, who was a traveller in the Republic some thirty years ago, and who is regarded still as the greatest authority upon the subject—contained 40,000 different specimens, including many birds of passage. This is, unfortunately, not the place to enumerate them, even were it within my capacity to do so; but I have determined some day—*Deo volente*—to return to Peru for the sole purpose of studying its wealth of *flora*, *fauna*, and *piscis*.

These latter may be found in a riot of abundance in practically all the rivers, as well as along the coast-line of 1,300 miles, such as the corbina, weighing from six to ten pounds, and having a delicious flesh; the skate, the sole, the plaice, the haddock, the cod, the flounder, the smelt, the mackerel, in addition to the lobster, the prawn, and the shrimp. I have

seen specimens of the latter weighing as much as one pound each, not exactly the type of fish of which Bayard Taylor sings, "Shrimps and the delicate periwinkle, such are the sea-fruits that the lasses love"; but, nevertheless, toothsome and palatable enough.

Then the butterflies, the gorgeous, glittering, and gem-flashing myriads of insects, some as large as thrushes, which flit and flash through the air or which whirl in clouds of crimson, of green, or of shimmering yellow, over certain spots which contain the flowers of which they are most fond. The forests are full of them, as of strange beetles, bugs, and other creeping things—things, moreover, which sting and bite furiously, and not infrequently impart death-dealing venom. Truly a paradise for the entomologist, the zoologist, the ornithologist, and all the other "ists," who make the works of Creation their special study and interest, is Peru.

CHAPTER II

Spanish conquest of Peru—Records of cruelty and oppression—Inter-necine quarrels—Francisco Pizarro—War of Independence—Peace compacts—Frontier delimitations—Questions with Bolivia, Brazil, and Colombia—Loreto dispute—British officers as referees—Expeditions at work on frontier delimitations—British services to Peru—Native exploration expedition.

PERU was the centre from which radiated all the Spanish expeditions formed to reduce South America. It was the one country which fought the most resolutely, but quite uselessly, against the Conquerors, and history teems with instances of the astonishing bravery of these ancient Peruvians who wrestled, entirely unarmed, the noblemen and chiefs combating with their bare hands against the weapons of their enemies. Naturally their losses were enormous, and the invincible Pizarro was enabled to do precisely what he pleased with them.

We learn of no more horrible instance of Spanish greed and treachery than the capture and garotting of the Inca Atahualpa. Pizarro secured him easily enough, by treachery, and could have used him—as, in fact, he did—for the purpose of putting an end to further resistance; but in spite of the three and a half millions of gold coin ransom, demanded and paid for his life, no sooner had the Spaniards secured (and counted) the amount of gold brought in, than they put the unfortunate prince to a hideous death. The only parallel for this shocking crime is the burning alive, by Hernan

Cortez, of the luckless Guatemoc, the noble Aztec King of Mexico.

Prescott tells us all about those and many other terrible deeds done by these European barbarians in their ceaseless search for gold ; and all who would know the details of the Spanish conquest of Peru, as well as that of Mexico, may read with confidence, if with feelings of disgust, this brilliant American historian's accounts. It is little less than astonishing to remember that during practically the whole of his literary career Prescott was compelled to employ the services of a reader, since he was practically blind, as a consequence of an accident which happened to him during his college days at Harvard.

Even the quarrels among the Spaniards, and the ultimate assassination of both Pizarro and Almagro, did little to help the Peruvian natives, for their earliest tyrants were succeeded by one even more merciless—Pedro de la Gasca—and the rest of the Spanish adventurers continued uninterruptedly to spread themselves across the face of the country, Gonzalo Pizarro proceeding to the East, where he lost fully one-half of his men in an expedition, but which resulted in his lieutenant, Orellana, making the first voyage down the Amazon which was ever undertaken by a white man ; Gongalo Jimenez de Quesada conquering the land of the Chilchas Indians and forming the kingdom of Granada ; while others went overland to the mouth of the River Plate in order to forestall the Portuguese, the Spanish King, Charles V., at the same time encouraging his other subjects—the Germans—to occupy and exploit Venezuela.

The land of the Incas is said by no less an authority than Sir Clements Markham, who has written upon Peru and its interests for something like half a century, to have been 250 miles in length by 60 miles broad.

I have no idea how Sir Clements arrives at his conclusions, more especially as other geographers and historians assert that ancient Peru consisted of the whole of the vast stretch of territory now known as the Republic of Ecuador, Peru, Bolivia, and the lands situated to the north of Chile and of the Argentine Republic. I think Sir Clements will agree that this area of land measures something more than "250 miles long by 60 miles wide." While questioning the correctness of these computations, I have no hesitation in recommending Sir Clements Markham's book "The Incas of Peru" to the consideration of readers who desire to acquaint themselves with an exhaustive and painstaking study of Peruvian history. Even when not quite accurate, Sir Clements is always readable.

The Incas—the very name conjures up romantic visions and feelings of profoundly melancholy interest—were generally regarded as mainly of Quechua origin, with a possible Aymara admixture, but in some of the interior parts of Peru to-day one meets with people who assure one that the Incas came from far-off lands and "arrived by sea." Of course, they know nothing about it, and merely repeat some of the many legends and traditions, of which they possess an inexhaustible supply, and they rattle them off quite glibly, with only a very little amount of encouragement.

It is to be much regretted that, for the most part, all that we possess in the way of records of ancient Peru are a few paintings of the earlier inhabitants and relics of that section of the population—known as the Yunga—of which the least is known. No doubt there were many valuable and interesting records in existence at the time of the Spanish invasion, but these must have been destroyed by the same vandalism which characterized the treatment of early Toltec and

Aztec relics received at the hands of the Spaniards in Mexico.

Blood and slaughter, slaughter and blood, are the main incidents which strike the reader who attempts to follow the arrival, the conquest, the defeat, and the expulsion of the Spaniards in Peru. Braver men never lived ; greater brutes never breathed. One's feelings are divided between admiration for the stirring, daring deeds of valour accomplished and simple loathing for the senseless butchery which followed. Treachery, jealousy, conspiracy, and assassination confront one upon every page of this astounding history, reminding one forcibly of the poet Burns' lament: "Man's inhumanity to man makes countless thousands mourn."

Francisco Pizarro, the base-born, illegitimate son of a colonel of infantry, and himself as great a soldier, as sound a statesman, and as keen a politician as ever any age produced—as we have seen in the previous chapter—came to Peru in 1524. He came for a second time in 1530 ; he fought practically every day thereafter until there were no more Indians to fight—at least, no more who had any fight in them. He then waged war against his own brothers-in-arms, and there followed a long, cruel, and relentless civil war which was carried on with all the ferocity and bestiality of the Spaniards. Assassination followed execution, and execution followed hideous torture. At last Francisco Pizarro came into his own. Having executed Diego de Almagro, his former lieutenant, Diego's young son assassinated Pizarro as he sat at dinner in his house at Lima, on June 26, 1541—just twenty-one years after he had first seen the golden shores of Peru, and eleven years after he had descended upon it like a scourge.

The sanguinary internecine war continued for long after Pizarro's death, even the Viceroy, sent out by



FRANCISCO PIZARRO. THE CONQUEROR OF PERU.
Born 1471. Assassinated 1541.
From a Contemporary Painting.

King Charles V. of Spain to restore order, being killed in battle waged by the King's own subjects. Rebellion ran rife throughout New Spain, and the utter failure of the Spaniards to justify their presence in the country at all—if one except their own immense enrichment—was continued right through the Colonial period and up to the time of the War of Independence. Did matters improve at all then? Let us see.

It is a little more than a century—to be accurate it was in the year 1806—since the first rumblings of a political upheaval, which was destined to free the whole of the South and Central American Colonies from the intolerable thralldom of Spain, were heard. Peru, although not taking the initiative, and being the last of the various Colonies to break away, benefited. One, Francisco Miranda, organized an expedition in New York, which was then, as now, the nest of much of the turbulence and political conspiracy which have troubled Latin-America; the idea originally was little more than a filibustering escapade into Venezuela.

It was not only to the United States, however, that Miranda appealed, for, allured by the prospects of a war between England and Spain, this Venezuelan revolutionary came over to London and had several interviews with William Pitt the Younger. In the year 1804 his relations with the British Prime Minister were very intimate, in spite of the fact that some years previously (September, 1791) we find Pitt writing to Miranda, stating that "he cannot grant him the pension he asked for nor the sum of £1,000"; and that "£500 (which presumably he sent to him) must suffice for the expenses incurred during his stay in London." It was to William Pitt that the daring adventurer unfolded this original plan of revolutionizing Spanish America. Pitt regarded him as a formidable weapon who might be used against Spain; but there is very

little reason to believe that the great Commoner cared anything about the independence of the Spanish American Republics.

The expedition failed ; but Miranda and most of his American mercenaries escaped. But the match had been laid, and from that time until complete separation from Spain had been secured—that is to say, for some thirty years—one long, continual, sanguinary conflict was waged, in which thousands of men lost their lives, others their reputations, and some few among them forfeited both. This was the time when such giants and heroes as Simon de Bolívar—the brave Argentine—Boves, Moráles, Sucre, Paez, and San Martín fought with a courage and determination almost incredible, and conducted campaigns in a country which is about the most difficult, from a physical point of view, for carrying on a war of conquest as exists in any part of the world.

The many peace compacts which were signed, first with Spain itself, and then when the young States commenced to fly at each other's throats, were as so much waste-paper. So far as Spain was concerned, she abandoned, only with reluctance, the beautiful and fertile land of the Incas ; and as late as 1866 we find the Peruvians and the Spaniards at war, the last encounter of all, which took place on May 2 of that year, being commemorated by a handsome monument erected in Lima, and standing some 70 feet in height.

Although divided into separate sovereign States, the question of boundaries which arose caused continual encounters, invasions, and outrages ; so that for nearly half a century these young and silly countries were disputing with one another, and have remained so more or less—and rather more than less—almost until to-day. It was only last year that a fresh encounter was threatened between Peru and Ecuador over a

boundary dispute which has lasted a full century. But for the great good sense and admirable restraint manifested by President Augusto B. Leguía and his advisers, nothing could have prevented a clash of arms, which would not only have ended with the defeat of Ecuador—much the weaker of the two—but have probably dragged in Chile and perhaps Bolivia, with the result of a wholesale South American entanglement, in which all of the States must have suffered pecuniarily, financially, and morally.

In this matter different versions of the dispute must inevitably occur; but inasmuch as this makes no pretence of being a political publication, the details of the controversy must be sought elsewhere than in these pages. To those who are interested in the matter to such an extent as to wish to study with closeness the merits and demerits of the Peru-Ecuador Boundary Question, I would suggest the perusal of the following Treaties and Agreements which were entered into, and which have important bearings upon the subject: The Treaty of Amity between Columbia and Peru of 1822; The Agreement of the Delimitation Commission of 1830; The Demarcation Treaty of 1841; The Boundary Treaty of 1860; The King of Spain's Arbitration Award of 1887; The new Treaty of Boundaries of 1890; The Tripartite Treaty of 1894; The Convention of 1905. A lengthy list of agreements in very truth, comprising volumes of litigious history, most of which have been valueless and barren of results.

At the time of writing, friendly—or at least diplomatic—relations have been restored between Peru and Ecuador through the intervention of mutual peace-makers—the Governments of Argentina and Brazil—and although Ecuador has stubbornly refused to submit the boundary question in Peru to the arbitration of the Hague Tribunal, there is reason to feel pleasure at

Peru and Bolivia having decided to refer their differences, also arising over boundary questions, to the Royal Geographical Society of London. I feel the greater satisfaction in this recognition of the Society by reason of the fact that I am, and have for some years past been, a Fellow. Neither is it the first occasion upon which the Society has been requisitioned to act in disputes between two foreign countries upon a matter of frontier delimitations. After the late King's Award in respect to the boundaries between Chile and Argentina, based upon the investigations and reports made to his late Majesty by Colonel Sir Thomas H. Holdich, K.C.M.G., K.C.I.E., C.B., a Vice-President of the Royal Geographical Society, and which Award was delivered in November, 1902, both Brazil and Bolivia agreed to a treaty making important changes on their common frontier, and providing that any disagreement which might arise in the demarcation of the new boundary, and which the two Governments could not themselves settle, should be decided by the Royal Geographical Society of London.

The same learned body obtained for Bolivia the services of Major Fawcett, who was in Bolivia at the same time that I was there last year (1910), in order to define the boundaries between the neighbouring Republics, Bolivia and Peru. Major Fawcett had already completed his preliminary reconnaissance, and upon his decision to the effect that further modifications would be necessary to define accurately the delimitations of the common frontier, the Governments of the two countries are acting.

This is a great compliment to British prestige, more especially as the services were not volunteered.

It may be pointed out, however, by the impartial critic that this boundary question differs materially from usual squabbles of the kind in which the "honour

of the flag" and the "dignity of the nation" play prominent parts. Here there is involved a serious question of territory—valuable territory—no less than the desirable province of Loreto. This large tract of land covers an extensive region in the very centre of South America, and is divided into northern and southern sections. Peru claims the northern section from Ecuador, and as this claim means the yielding up of about one-fifth of the entire territory, it is not difficult to understand Ecuador's objection to giving way. In regard to the southern section, Peru has claims against both Brazil and Bolivia. Moreover, the Republic of Columbia would also be involved, since in days gone by Ecuador ceded—for a sufficient consideration—a portion of the disputed territory to Columbia, and should Peru secure in its favour a judgment to its possession, this portion would naturally have to be given up also. The United States Government has already recognized Peru as the legitimate owners of this territory.

Pliny's axiom, *Nihil enim æque gratum est adeptis, quam concupiscentibus*, does not apply to lands; for the more countries have the more they want, and the mere sense of possession, even though it be valueless from an economic point of view, seems to afford satisfaction. As I have observed, however, this is a dispute which means the loss, or the acquisition, of a territory unusually rich in timber, rubber, and mining possibilities, and which any country would regard with feelings of envy.

Several British officers have been supplied to the Peruvian Government, at the request of the Minister in London, for the purpose of carrying out the demarcations of the newly accepted frontiers of Bolivia and Peru. The party formed consisted of Colonel O. J. Woodroffe, R.E. (who has had previous ex-

perience of boundary-surveying in East Africa), Captain H. S. Toppin, Lieutenant M. R. Nanson, and Lieutenant C. G. Moores. They left England early in January last, and they expect to be absent on this mission for at least three years. Both Captain Toppin and Lieut. Nanson are Fellows of the Royal Geographical Society, and hold its diplomas for surveying. Colonels Fawcett and Woodroffe joined forces at Juliaca (Peru) last May, and proceeded *viâ* Tira-pata to the Inambari and Madre de Dios Rivers, where the survey of the boundaries commenced.

Not to be undone in the matter of expeditions, and recognizing that since "the mountain will not go to Mahommed, Mahommed must go to the mountain," some North Americans have organized a little undertaking to explore Peru on their own account. One, Professor Hiram Bingham, was to have left the U.S.A. on June 10 last, and to be absent until December next, doing "archæological, geographical, and historical exploration." What the party expected to accomplish of a practical character in six short months, including the time spent upon the journey there and back, it is difficult to imagine.

✓ There have been several women travellers, writers, and explorers, who have exploited Peru as a happy hunting-ground from time to time, and some, I am sorry to say, have left anything but a pleasant memory or an enviable reputation behind them. There has been one notorious female, of alleged American nationality, who continually rode about the Republic in man's attire, and whose general conduct created no small amount of scandal wherever she bent her footsteps. An intolerable nuisance to her all-unwilling hosts and a disgrace to her own sex, this woman will be readily recognized from this description among those who had the misfortune to know her.

On the other hand, there have been several prominent and well-recommended ladies who have travelled extensively in Peru, and who have astonished the natives by their extraordinary powers of endurance and physical pluck. Mrs. Marie Robinson Wright, who has written a considerable number of handsomely produced volumes upon the Latin-American States, will be remembered; and her book on "Old and New Peru" will have made her many warm friends in that Republic.

Another American lady who has left behind her many pleasant memories is Mrs. Harriet Chalmers Adams, the very handsome and accomplished wife of Mr. Franklin Adams, Chief Clerk of the Pan-American Union, and Editor of that excellent publication, "The International Union of American Republics *Bulletin*."

Mrs. Adams, who has spent three years in the Latin-American Republics, and has travelled 40,000 miles therein, also visited Peru, and travelled it from end to end. She not only made the usual and often very fatiguing pilgrimages to Cuzco, Arequipa, Titicaca, and other places, but she undertook a horseback trip, in the company of her husband, extending over 1,000 miles across the Andes, passing the height of 17,000 feet among the eternal snows. This intrepid young lady then followed the down mountain-trail into the savage and almost unknown *montaña* country, and at the end of the road journey passed many days and nights in a small and cramped canoe, and often trudged through the dense forests on foot. Mrs. Adams relates how, on these travels, she encountered the wild Indians known as the Chunchos, as well as numerous fierce beasts, strange birds, and innumerable deadly insects; certainly, for a woman delicately and luxuriously bred, her experiences may be deemed almost, if not quite, unique.

In the meantime, the Peruvian Government is encouraging native explorers, several reliable parties having of late months started for the interior, assisted by the authorities. Among them is Captain Juan Manuel Ontaneda, Chief of the Hydrographic Office in Lima, who is commissioned to make a comprehensive study of the geography of the Department of Loreta, to trace the course of its rivers, and prepare for consultation and reference the necessary maps and plans relating thereto. Captain Ontaneda is being assisted by Captain Carlos F. García Rosele, and First-Lieutenant Manuel A. Sotil, all three of whom are practical experts.

As soon as the expedition has completed its labours, and which are expected to occupy a considerable amount of time, a full and detailed report will be made to the Government, which will publish it for distribution, the idea being to assist private persons and public organizations who are interested in the development of the very fertile and promising section of Peru, who can thus avail themselves, and benefit indirectly the country itself, of the bountiful resources of this region. This is true and legitimate enterprise upon the part of a Government, and sets an excellent example to others.

CHAPTER III

President Augusto B. Leguía—Dr. German Leguía y Martínez—Dr. Eugenio Larrabure y Unanue—Dr. Julio Enrique Ego-Aguirre—Dr. Enrique C. Basadre—Señor Don Enrique Oyanguren—Dr. Edmundo N. de Habich—Don Carlos G. Cardamo—Dr. Carlos Larrabure y Correa—Señor Eduardo Lembcke—Peruvian Legation in London—British Minister to Peru—United States Minister and Consuls—British Consul-General at Lima.

MANY of the reigning Presidents of Latin-American States are capable linguists, most of them speaking French and some few English. The two Chief Magistrates who shine most conspicuously in this direction are the President of Peru, Señor Don Augusto B. Leguía, and the President of Costa Rica, Señor Dr. Ricardo Jimenez. The former might very well pass for an Englishman, so admirably does he express himself in our language and so free from accent is his pronunciation.

Señor Don Augusto B. Leguía was born at Lambayeque in 1863, so that he is still a comparatively young man. His early education was conducted at Valparaiso (Chile), and upon completing this he came back to Lima, where he entered one of the leading native commercial establishments. Although obtaining speedy promotion, young Leguía resigned his post in order to enlist as a private soldier during the war between Peru and Chile; and he then distinguished himself greatly, and especially at the memorable battle of Miraflores.

Peace being proclaimed, the young soldier devoted himself once again to mercantile pursuits, becoming

special agent, and later General Manager, of the New York Life Assurance Company in Peru, Ecuador, and Bolivia. Later, the Company withdrew from this part of South America, when Señor Leguía started the now well-known office La Sud América, which his great administrative ability soon established as a popular and prosperous institution.

A short while afterwards there was organized another important enterprise, the British Sugar Co., Limited, which owned an extremely large area of territory in the Cañete and Nepaña valleys, estates which have been pronounced to rank among the most important and the most skilfully managed in Peru. Señor Leguía remained as General Manager of this Company up to the time that he was elected to the Presidential Chair in September, 1908; and the same ability which he had displayed in organizing and controlling these and other great industrial undertakings has served him in his more responsible position as Chief Magistrate of the Republic.

Five years previously Señor Leguía had practically commenced his political career. In 1903 his great genius for finance had attracted the attention of President Candamo, and, after much persuasion, he served him as his Minister of Finance. How well founded was the President's belief in his new adviser, and how shrewdly he had gauged his ability was speedily proved; for from the time that the new Minister took over the control of the finances of the State they commenced to improve, and they have consistently advanced since. In another part of this volume, in speaking of the financial conditions of the Republic, I have referred more fully to the prominent part which Señor Augusto B. Leguía has played in their reformation.

What the famous José Yves Limantour was to

THE
PERU
1908-1912



HIS EXCELLENCY THE PRESIDENT OF THE REPUBLIC OF PERU. (1908-1912)
[SEÑOR DON AUGUSTO B. LEGUÍA.]

Mexico in the early days of its financial difficulties, Señor Leguía has been to Peru. No greater skill could have been displayed, nor any more shrewd diplomacy, than that which has been brought to bear upon this latter Republic's economic position. Delicate operations, calling for both circumspection and consummate knowledge of human nature, were carried out by Señor Leguía with the utmost sagacity and prudence, and radical changes in the monetary status of the country were brought into operation without causing the slightest disarrangement of normal conditions. To-day, the country may be said to have emerged completely from the sea of its many difficulties—difficulties in which it, at one time, seemed destined to become engulfed. The country has established a sound commercial and monetary credit which nothing can apparently shake.

It is not only in the field of finance, however, that Señor Leguía has established an enviable reputation or evoked the admiration of his contemporaries. His great personal worth, and the undoubted physical valour which he displayed at the time of acute political upheavals and threatened war with more than one of the neighbouring Republics, the shrewd sense with which he controlled the situation—one which appeared almost hopeless of solution—have obtained for him the esteem—I may say the affection—of the Peruvian nation.

The Peruvians, like the majority of mankind, look up to and admire a thoroughly brave man—not a merely reckless and venturesome individual, who thinks little of his own life and nothing of other people's; but a really plucky and resourceful leader, who realizes La Rochefoucauld's conception of a brave man—"performing without witnesses what one might be capable of doing before all the world."

As Head of the State, President Leguía has earned the respect of even his most determined political opponents, if even he has failed to gain their adherence; his own party are devoted to him. Since he has been in office, he has maintained a scrupulously equitable and non-partisan attitude; he has conscientiously fulfilled to the very letter his sacred oath of fidelity to the Republic; and he has fought gallantly for the dignity of his country in all questions affecting its interests. By his scholarly attainments and great personal charm of manner, he has made many warm and zealous friends, and he has likewise contributed, to a very considerable degree, to the restoration of Peru as a potent factor among the Latin-American countries of the world.

Dr. German Leguía y Martínez, Ministro de Relaciones Exteriores (Foreign Affairs), before accepting office under the Basadre Cabinet, had had a distinguished diplomatic career. Summoned to join President Leguía's present advisers from occupying the post of Envoy Extraordinary and Minister Plenipotentiary at Quito (Ecuador), Dr. German Leguía y Martínez had had previously several years' experience in the same country.

In 1880 and 1881 Dr. German Leguía y Martínez served as Attaché of the Legation in that Republic, and in 1888 he became Second Secretary, serving in that capacity until 1893. In 1897 he became a Deputy, and during the Pardo administration he acted as Prefect—equivalent to a Lord-Lieutenant, but endowed with much wider powers—of Piura. By profession this gentleman is a lawyer, and he has displayed conspicuous ability in handling several complicated and important cases. For some time he was "Vocal" of the Superior Court of Arequipa, and later on he filled a similar post at Lima.

From there he went to Ecuador. From his early youth, Dr. Leguía y Martínez has been known as a clever and vigorous writer, his contributions to didactic literature being celebrated, indeed, beyond the confines of his own country. He is a man of powerful intellect, quiet and unobtrusive disposition, possessed of great tact, and, in fact, he is as good an example of a cultured Latin-American diplomat as one can hope to meet with. Dr. Leguía y Martínez's sympathetic attitude towards foreigners and foreign enterprises, as well as his courtly and dignified manner, render him a distinct acquisition to a Cabinet already rich in cultured and talented men. He is still on the sunny side of fifty.

Dr. Eugenio Larrabure y Unanue, first Vice-President of the Republic, is not only possessed of great literary and scientific attainments, but he has travelled considerably, his most recent visit to Europe having taken place in December of last year. Dr. Larrabure y Unanue represented his country as Special Ambassador at Buenos Aires, during the Centenary Celebrations of last year; he has had many valuable opportunities of studying different countries and peoples, of which he has always made the greatest use.

Dr. Julio Enrique Ego-Aguirre, ex-Ministro de Fomento (Minister of Promotion), was born in 1862, and was considered one of the most brilliant students at Guadalupe College. Later on, he studied jurisprudence at San Carlos, and in 1885 he graduated as a fully qualified lawyer. The annals of the Peruvian Courts contain no more remarkable records than that of this clever young barrister's spirited and vigorous defence of the famous criminal Machiavelli, an oration which is said to have both astonished and delighted his auditors, and which succeeded in establishing an immediate reputation for its author. Up to that time no one in Peru had heard, nor had imagined, a defence

based upon the assumed irresponsibility of the accused ; but since then the theme has frequently been pleaded, and is now cited as a common defence in all countries. The theories of Lombroso had then, however, made but little stir, and certain it is that young Ego-Aguirre had not these, nor indeed any other theories, in his mind at the time. In fact, he himself created a new teaching, one which has since found general endorsement and adoption. It may be added, that so powerful was his defence of Machiavelli, that although the criminal was actually convicted and condemned to death, the sentence was subsequently revoked.

For some years Dr. Ego-Aguirre resided in Oruro and La Paz, in both of which places he distinguished himself. In 1885 he went to Iquitos, where he remained for a considerable time, having filled several responsible positions in the administration of that city. In 1907 he was elected Senator for the Department of Loreto, which he continued to represent until his appointment to the Ministry of Promotion. He has a close and intimate acquaintance with the commercial and industrial progress of other countries—European and American alike ; and his broad sympathies with foreigners generally have made him extremely popular with residents in Peru. Under his directorship, the Ministry of Fomento has encouraged and promoted many very valuable and useful undertakings, not the least of which is the comprehensive library of works dealing with the resources of the country and the numerous opportunities which exist for adding to and exploiting them. Dr. Julio Enrique Ego-Aguirre is considered one of the most distinguished and advanced men of his day, for whom further national honours are undoubtedly in reserve. He has recently been paying a lengthy visit to Paris for the purpose of establishing in that Capital an Information Bureau in

connection with the commercial and industrial progress of Peru.

Dr. Enrique C. Basadre, ex-Minister of Government, was born in Tacna, in 1847. His education commenced in the English school of Valparaiso, Chile, and was continued at the National College of Guadalupe, Lima, from which he graduated to enter the National College of Medicine, taking his degree as physician and surgeon in 1873. The next four years were spent in post-graduate work in Europe.

Dr. Basadre ranks among the foremost physicians in Peru, and is known principally in connection with the founding, in conjunction with Drs. Ganoza and Moráles, of the first institute of electrotherapy, and in relation to his notable army and navy hospital work. As a student at the Medical College, he volunteered for service and fought with such good effect at the battle of Dos de Mayo that he was specially mentioned in dispatches by Colonel Inclan, who was in command. At the commencement of the Pacific War he offered his services gratuitously, and was appointed physician of the frigate *Independencia*, being, according to the record, the last man to leave her decks when she was destroyed at the battle of Punta Gruesa.

Upon his return to Lima after this disaster, Dr. Basadre gave his services during the Callao bombardment. Later, he took charge of a ward at the Hospital of San Bartolomé, where he had the good fortune to attend Dr. Cavero, President of the Peruvian Cabinet, who was wounded at the battle of Miraflores. Dr. Basadre not only saved his compatriot's life, but, in spite of contrary professional opinions at the time, he refused to amputate the left arm which was injured, and of which Dr. Cavero has found excellent use to this day.

Upon the Chilean occupation, Dr. Basadre resigned

from the hospital, refusing to work under the orders of the enemy's surgeons. Dr. Basadre is a prominent member of various commercial organizations, and also the Government representative on the directorate of the National Steamship Company. He is extremely active in the Pro-Marine Association and in other patriotic movements.

An ex-Minister of Justice, Culture, and Education is Dr. Antonio Flores, whose late administration of this Department of Government was attended with the happiest results. At no time in the history of the country has education been at a more advanced stage than at present, and, as will be seen in Chapter VIII., which is devoted to the consideration of this section of the Government's work, the progress effected is in every way gratifying and encouraging. Dr. Antonio Flores is himself a man of considerable attainments and of great culture, in every way qualified to control a branch which, to use the words of Horace Mann, in his famous "Lectures upon Education," alone can "conduct us to that enjoyment which is at once best in quality and infinite in quantity."

General José R. Pizarro, who bears a name famous in Spanish military history, was until recently Minister of War and Marine. He is a soldier of brilliant record, and possessing a thorough knowledge of military and naval matters, acquired both at home and abroad. Both branches of the national defence have of late years received careful and systematic attention at the hands of the Government, and this fact is freely explained in Chapter IV., which is devoted to the description of the Army and Navy of the Republic of Peru as they are found to-day. General José R. Pizarro effected much to consolidate the good work introduced by his predecessors in office. He was

a strict, but a kindly, disciplinarian, and he was as much esteemed by the rank and file as he was liked by his officers and appreciated by the Executive.

Señor Don Enrique Oyanguren, ex - Minister of Finance and Commerce in the late Cabinet, brought to this high and important post a wide experience in affairs of State and commerce generally. His career may be said to have commenced in 1883 as amanuensis in the Department of Justice, where he successively filled various positions, eventually becoming Director-General. While thus engaged, he had occasion to act in connection with many important cases. This Department, which has under its charge all public instruction, is distinguished by the ability of its several officers, and Señor Oyanguren served as Visitor-General in this branch, and prepared the first statistical treatise on education in Peru. In 1895, after declining the appointment of Consul at Panama, he was made Consul-General at Valparaiso, where he remained until 1901. In that year he was entrusted with more than one important and delicate commission in connection with the provinces of Tacna and Arica, and in relation to the military service of Peruvians resident in Tarapacá, in carrying out which he achieved signal success.

Resuming his consular office in Chile, he remained in Valparaiso until 1908, being then named Chargé d'Affaires at Santiago. In 1909 he was appointed Minister Plenipotentiary of Peru in Ecuador, a post which he judged it prudent to decline, in view of the attitude which he had been compelled to adopt as Chargé d'Affaires, and particularly his formal protest to Señor Agustin Edwards, then Minister of Foreign affairs, and now the Chilean Minister at the Court of St. James's, against the attempt to "Chilenize" the Peruvian Provinces of Tacna and Arica, and in con-

sideration of the open incitement of Ecuador by Chile in the attempt to make trouble for Peru.

Returning to Peru after renouncing the Ecuadorian Mission, Señor Oyanguren became Superintendent of Customs, where he has had the opportunity of displaying the business ability which had been acquired during his diplomatic training. In many positions of trust which he has held under and in the Government, Señor Oyanguren has been most diligent to the interests of Peru, and has proved himself a man of great discretion and a generally competent judge.

That highly important Department known among the Latin-American Governments as "Fomento"—Promotion, as we should call it in our inadequate and inexpressive language—has, besides a Minister, a permanent Director. A distinguished occupant of this post is Dr. Edmundo N. de Habich, a young but very brilliant man, now in his thirtieth year. Dr. Habich, who was born at Lima in 1882, was educated at the University of San Marcos, the oldest educational establishment in America, and he took practically every learned degree which could be held, until in 1903 he entered upon his subsequently distinguished diplomatic career. Like several other Government officials, he selected the legal profession, and soon, after qualifying, he was appointed Secretary to the Minister of Fomento, and the same year to the Superior Board of Health. In 1903 he was the chief organizer of the Section of Agriculture and Immigration, the year following becoming a member of, and Secretary to, the Commission of Weights and Measures, and subsequently special commissioner of the Department in Ica, Huancayo, Jauja, and Cerro de Pasco. In 1907 he was promoted to be Director of Fomento *ad interim*, being confirmed subsequently in the post. His services here have been recognized

as extremely valuable, and undoubtedly they are both very arduous and responsible. As time goes on they will, no doubt, become increasingly so; but Dr. Habich has already evinced so much capability, and has demonstrated so conclusively his fitness for the position which he holds, that there can be no question of his being enabled to grapple with and to satisfy the demands which will be made upon him.

The appointment of Dr. Carlos Larrabure y Correa to the position of Chief of the Information Bureau in Paris, established early this year (1911), has proved a happy selection. Dr. Larrabure y Correa had been the Acting Minister of Promotion ("Fomento") at Lima for some time, during the absence abroad of Dr. Matto, and he is himself a man of wealth and excellent family. He was born in 1876, and at an early age went to Spain, where his father, who is at the present time First Vice-President of the Republic of Peru, was diplomatic representative. Dr. Larrabure studied at the College of Guadalupe, and later entered the University of Lima, taking the courses of Administration, Political Science, and Jurisprudence, and graduating in 1899, and in Political Science in 1900. He first entered the Government service in 1901 as Secretary of the Ministry of Fomento, serving until 1903. Afterwards he became Chief of the Boundary Limits Section of the Ministry of Foreign Affairs, and Director of the Ministerio of Fomento, which had been founded by his father. Dr. Larrabure is Professor of Political Economy in the National School of Agriculture, and he is the author of a great number of valuable publications—notably a work, in eighteen volumes, upon the "Department of Loreto." He is also a member of the Lima Geographical Society, of the Lima Athenæum, of the Historical Institute of Peru, and the Washington Geographical Society.

The Republic of Peru is represented in Great Britain by a Minister (who is resident in Paris), two Secretaries, an Attaché, a Chargé d'Affaires and Consul-General, a Consul at Liverpool, and one each appointed to Southampton and Glasgow.

Don Carlos y Candamo, the Minister, who is a member of the family of a former President of Peru, is but rarely seen in England, but he is a well-known and eminently popular resident of the gay city.

The resident representative of the Republic in London is Señor Don Eduardo Lembcke, Chargé d'Affaires and Consul-General. The Legation is at 104, Victoria Street, S.W. Señor Don Lembcke is a highly cultured and accomplished man, well versed in diplomatic matters, and both speaking and writing English with great fluency and accuracy. Señor Lembcke creates an immediately favourable and sympathetic impression with all who have business with the Legation, and his ability in dealing with the complicated questions which not infrequently arise, show him to be a thorough man of the world.

The Secretaries are Señor Don R. E. Lembcke and Señor Don E. Leguía, the latter a younger brother of the President of the Republic, and both being young men of great charm of manner and distinction.

Señor Don Bernardino Codesido is the Consul at Liverpool, Señor Carlos G. Estenos at Southampton, and Señor Don M. D. Derteano at Glasgow.

The Legation and the Consular offices are usually kept well informed in regard to commercial matters, and since the establishment of the new Government Information Bureau in Paris (to organize which the ex-Minister of Fomento, Señor Don Julio Enrique Ego-Aguirre, stayed for some months in France), it is possible to obtain comparatively recent statistics and



LIMA: COLUMBUS AVENUE, ONE-THIRD OF A MILE LONG AND 125 FEET WIDE.

reports concerning the industrial and commercial progress of the country. This new office will be of great benefit to foreign traders in Europe generally, and it is to be hoped that, later on, the Government of the Republic may be induced to open a branch in London or Liverpool, or even in both cities, the commercial relations between the two countries thoroughly warranting such an enterprise. (See Appendix.)

The United States Minister Plenipotentiary to Peru is Mr. Henry Clay Howard, Envoy Extraordinary. He succeeded Mr. Leslie Combs on April 24, 1911, and is occupying the same building as the Legation—Quinta Heeren. American interests are rapidly augmenting in this Republic, and they will reach considerable importance so soon as the Panama Canal opens in January, 1915.

The British Minister is Mr. Charles Louis des Graz, the Legation being at Paséo Colón, No. 346. He is about fifty-two years of age, having been born in March, 1860. Educated at Harrow, he took his B.A. at Trinity College, Cambridge. In 1884 he was nominated Attaché, and the same year he passed a competitive examination, when he was sent to Constantinople. Mr. des Graz has served at Athens, the Hague, St. Petersburg, Teheran, Rome, Cettinjé, Bolivia, Ecuador, and finally Peru. He speaks Russian, Persian, Turkish, and Spanish quite fluently, and he is one of the most amiable and popular diplomats who have come to Lima—a great improvement, indeed, upon his predecessor, who displayed an astounding propensity for rubbing people, and especially officials, the wrong way.

On the whole, the British Government has sent thoroughly representative men to Peru, the following having been Ministers since 1850: In 1852 Sir Edward Harris, who, like his successor, was, until

1906, also Consul-General; in 1853 Mr. S. H. Sullivan, who was assassinated in August, 1857; in 1857 Hon. William G. S. Jerningham, and who served until 1872; in 1874 Sir C. E. Mansfield; in 1894 Captain H. M. Jones, V.C.; in 1898 Mr. William N. Beauclerk, who served until March, 1908, when he died at his post. He was raised from Minister Resident and Consul-General to Envoy Extraordinary and Minister Plenipotentiary, the post of Consul-General being made a separate appointment.

Both the British and the United States are exceptionally well represented in the Consular Service, a fact well worth recording, in view of the generally unsatisfactory nature of our consular representatives throughout Latin-America, a matter which has attracted very serious attention, and upon which I have commented at length during the past twenty years and more.

Mr. Lucien Joseph Jerome, F.R.G.S., is the British Consul-General at Lima, and has had a distinguished and useful career. Born in March, 1870, he was at first employed in the Consulate at Nice, which position he occupied from 1890 to 1897. He was then placed in charge of the Vice-Consulate at Monaco, where he remained but three months (July to October, 1897), when he was removed to a similar position at Havana, Cuba. He served as Acting Consul-General there from July 6, 1898, to March 27, 1899, and during the troublous times between the United States and Spain Mr. Jerome was placed in charge of American interests in Cuba, and continued to represent these during the whole term of the American-Spanish War. So admirably did he perform his duties, that he was subsequently made the recipient of the warm official thanks—conveyed in the form of an extremely graceful letter—from the United States Government. Mr.

Jerome left an altogether excellent impression among the large American population at Havana.

Promoted to be British Consul for the United States of Mexico (the States of Vera Cruz, Yucatán, Campeche, and Tabasco excepted), Mr. Jerome left to reside in Mexico City in February, 1899. He was also Acting Consul-General of Port-au-Prince (Haiti) from August, 1905, to January, 1906. A new Commission was issued to Mr. Jerome as Consul for the United States of Mexico in January, 1906. The following year, however (1907), he was promoted to be Consul-General for Great Britain in Peru, and he was put in charge of the Legation at Lima from March to November, 1908.

Those manufacturers and traders who would seek inspiration from our Consular trade reports must sometimes ask themselves why so much divergence of plain and easily ascertainable facts should occur in these usually meagre and frequently misleading pamphlets. In connection with Peru, for instance, we see the British Consul at Lima, in 1905, sending home a piece of information which is flatly contradicted by his successor in 1907. The extracts read as follows :

CONSULAR REPORT BY MR. ST. JOHN, No. 3,635, FOR THE YEAR 1905.

"There may be sooner or later an opening for iron bungalows and other buildings of various descriptions. . . .

"Building in the chief coast towns is expensive. . . ."

CONSULAR REPORT OF MR. L. J. JEROME, No. 4,074, FOR THE YEAR 1907.

"The demand for bungalows does not exist. . . .

"Certainly nowhere are houses constructed of cheaper material. . . ."

When these critics of foreign trade *do* by chance agree, it may be assumed that their "unanimity is wonderful."

Mr. William Henry Robertson, the United States

Consul-General at Callao, is a son of a former Confederate General, and was educated in his native State of Virginia and in Charleston, South Carolina. He entered the Consular Service when quite a young man, his first foreign post being Hamburg, Germany. After four and a half years there he was superseded upon a change of political parties in the United States, and it was not until 1900 that he found another post. Meanwhile, he had travelled about Europe and South America, and as a reward presumably for his services, he was appointed by the Republican President McKinley to a Canadian Consulate. Rather a "rolling stone," however, Mr. Robertson again left the Service to embark upon a commercial career in New York. Tiring of this, he entered upon an examination under the régime of Mr. Roosevelt, and finding encouragement as soon as the Consular service was put upon a permanent basis, he was appointed to Gothenburg, Sweden, where he remained for one year. He was then promoted to Tangier, in Morocco, continuing there until transferred to Callao, Peru.

The United States Government consider that Peru is well worth looking after from a trading point of view. Both in New York and in the principal ports of the Republic an exceptionally competent staff, consisting of a Consul and a Vice-Consul, have been employed upon the business.

The Peruvian Consul-General at New York is Señor Don Eduardo Higginson, who was born at Callao, in March, 1862, and educated at the University at Lima. Although possessing an Anglican name, he is a true Peruvian, and served in the war between Chile and Peru from 1879 to 1881, attaining the rank of Lieutenant in the National Guard. Señor Higginson is not unknown in England, having been

Consul-General, Chancellor, Vice-Consul, and subsequently Consul, at London, Liverpool, and Southampton. When here, he was very successful in creating interest in, and sympathy towards, Peru, having contributed many striking articles relative to that country. As an instance of Señor Higginson's enterprise, it is worthy of mention that he sent out to Peru a collection of no fewer than 20,000 different commercial catalogues, in order to stimulate trade with Europe, as well as publishing, at his own expense, and distributing some ten years ago, about 40,000 copies of a large coloured map of Peru, bearing on the reverse complete information of a practical character in English, German, Dutch, and Swedish. The Peruvian Consular Offices in New York are in Broad Exchange Buildings, 25, Broad Street.

The United States Government has so completely awakened to the importance of its Consular Service that it now despatches its representatives upon their official way with the same amount of ceremonial attention that it bestows upon some of its fully-accredited Ministers. Thus, when Mr. Charles C. Eberhardt, one of five Consuls-at-Large of the United States of America, visited Peru in the month of October, 1910, he was brought to Callao in a U.S. cruiser, the *Yorktown*, and his arrival was greeted with a salute of ten guns. This almost regal recognition of a consular appointment compares strangely with the furtive and secret manner in which some British Consuls sneak into their posts, such, for instance, as the arrival at Antofagasta, Chile, of Mr. Godfrey Hewett, the British Consul, who came from Pernambuco, and was allowed to land without one single Englishman or Englishwoman out of the entire considerable British Colony going down to meet him.

CHAPTER IV

Government—Departments—Provinces—Districts—Executive power—Population—Judicial administration—Jurisdiction of Courts—Congress—Ministers' portfolios—Local government—Departmental Boards—Navy—Strength in 1911—Army—Strength in 1911—French Military Mission—Armaments—Peruvian soldiers—Full fighting strength.

THE Republic of Peru is divided politically into twenty-two different Divisions, known as "Departments," each of which has its own local government and its separate capital. They are differentiated between by the appellations of "Department" and "Littoral Province," and these are subdivided into 101 minor provinces, which, yet again, are split up into districts. The Departments are under the control of Prefects, who receive their instructions from, and are subservient to, the Secretary of the Interior; the Provinces are controlled by Sub-Prefects and the Districts by Governors.

The following are the Departments :

Amazonas, Ancachs, Apurímac, Arequipa, Ayacucho, Cajamarca, Cuzco, Callao, Huancavelica, Huánuco, Ica, Junín, Lambayeque, La Libertad, Lima, Loreto, Moquegua, San Martín, Piura, Tacna, Puno, and Tumbes.

Of these the two Littoral Provinces are Moquegua and Tumbes.

For purposes of readier reference, I give, opposite the names of the different capitals, the smaller provinces, and the districts, as well as the superficial

DEPARTMENTS

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Name of Department.	Name of Capital.	No. of Provinces.	No. of Districts.	Superficial Area.	Population.	Names of Principal Provinces.
Amazonas	Chachapoyas	3	40	36,122	53,000	Bongorí, Luya.
Ancaëlis	Huaraz	9	76	42,908	317,050	Bolognesi, Cajatambo, Huailas, Huari, Pallasca, Pomabamba, Santa, and Jungay.
Apurímac	Abancay	5	31	21,209	133,000	Abancay, Ainaracs, Andahuailas, Antabamba, and Cotabambas.
Arequipa	Arequipa	7	77	56,857	171,750	Cailloma, Camaná, Castilla, Condesuyos, Islay, and Unión.
Ayacucho	Ayacucho	6	51	47,111	226,850	Cangallo, Huamanga, Huanta, La Mar, Lucanas, Farinacochas.
Cajamarca	Cajamarca	7	63	32,482	333,310	Cajabamba, Cajamarca, Celendin, Contumaza, Chota, Hualgayoc, Jaén.
Cuzco	Cuzco	12	62	404,845	328,980	Acomayo, Anta, Calca, Canas, Canchis, Convención, Cuzco, Chumbivilcas, Paruro, Paucartambo, Quispicanchis, Urubamba.
Callao	Callao	1	1	37	33,879	Callao.
Huancavelica	Huancavelica	4	27	23,967	167,840	Angaraes, Castrovirreina, Huancavelica, Tayacaja.
Huánuco	Huánuco	3	22	36,331	108,980	Dos de Mayo, Huamalíes, Huánuco.
Ica	Ica	3	15	22,586	68,220	Chincha, Ica, Pisco.
Junín	Cerro de Pasco	4	41	60,484	305,700	Huancayo, Jauja, Pasco, Tarma.
Lambayeque	Chiclayo	2	20	11,952	93,070	Chiclayo, Lambayeque.
Libertad	Trujillo	6	50	26,441	188,200	Huamachuco, Otuzco, Pacasmayo, Pataz, Santiago de Chuco, Trujillo.
Lima	Lima	6	59	34,482	250,000	Canta, Cañete, Chancay, Huarochiri, Lima, Yauyos.
Loreto	Iquitos	3	18	617,677	120,000	Alto Amazonas, Bajo Amazonas, Ucayali.
San Martín	Moyobamba	3	15	79,625	33,000	Huallaga, Moyobamba, San Martín.
Moquegua	Moquegua	1	8	14,375	31,920	Moquegua.
Piura	Piura	4	25	38,458	154,080	Ayabaca, Huancabamba, Paíta, Piura.
Puno	Puno	8	78	106,731	403,000	Azángaro, Ayaviri, Carabaya, Chucuito, Huancané, Lampa, Puno, Sandia.
Tacna	Locumba	3	18	32,618	38,000	Arica, Tacna, Tarata.
Tumbes	Tumbes	1	1	5,130	8,000	Tumbes.
	Total	101	798	1,752,422	3,547,829	

area in kilometres, with the estimated population. In regard to these, however, it is necessary to add that no census has been taken in Peru since 1904, statistics being furnished by the Lima Geographical Society, and not being official. For all practical purposes, the total population of the Republic may to-day be taken at 4,600,000—a figure which I believe to be below, rather than above, the mark, especially if the Japanese and Chinese immigrants are taken into consideration.

In 1896 (ten years after the last census had been taken) the Lima Geographical Society estimated the total population of the Republic at 4,609,999, although the previous census had placed it at only 2,657,853. Of these inhabitants, it has been estimated that 57 per cent. are aborigines, 23 per cent. of mixed blood—white and Indian or negro and Indian—the remaining 20 per cent. being descendants of the Spaniards, some 6,000 or 7,000 Europeans, 15,000 Chinese, and 900 Japanese. The Chinese are gradually dying out, the immigration being now entirely forbidden by the law of May 14, 1909. (See Appendix.) Up till now no really precise account has been kept of the movement of population, but with the increased attention which is being devoted to such matters by the officials in Government employment, reliable statistics and accurate reports may be obtainable hereafter.

The administration of the law in Peru is in the hands of a Supreme Court, which sits in Lima, and nine Superior Courts, which have jurisdiction within certain prescribed limits. For more facile reference, I give the names of the various cities where these Courts have their headquarters as well as of the places within their particular jurisdictions :

Name of Place where the Court sits.	Jurisdiction.
Huaraz	The whole of the Department of Ancachs.
Arequipa	The Department of that name, the Littoral Province of Moquegua, and the Provinces of Tacna and Tarata.
Ayacucho	The Department of that name, that of Huan-cavelica, the Province of Andahuailas in the Department of Apurimac.
Cajamarca	The Department of that name, and the Departments of Amazonas and Loreto.
Cuzco	The Department of that name and the Department of Apurimac except the Province of Andahuailas.
La Libertad	The Department of that name and the Department of Lambayeque.
Lima	The Department of that name, the Departments of Ica and Junin, the constitutional Province of Callao, and the Department of Huánuco.
Piura	In the Department of that name solely.
Puno	In the Department of that name solely.

Up till the war with Chile a Court sat at Tacna, but since then it has been suspended, all judicial matters being transferred for decision to the Court sitting at Arequipa. The Provinces, with but few exceptions, have minor courts, where Judges of the First Instance sit, as well as Justices of the Peace.

In civil cases which relate to sums of money not exceeding 160 *sols* (£16) in value, and in minor criminal cases, the Judges of the Primary Court have jurisdiction. The Supreme Court is a court of appeal also, and revises the decisions of the courts below, the decisions in this case being final. It also hears claims against the Government, and its deliberations and judgments are conducted with much decorum, and are usually sound in law. The legal rights of foreigners are strictly conserved. According to the 132nd Article of the Constitution, "The law of the land protects equally all persons, and the civil rights of individuals are granted, irrespective of station or nationality." (See Appendix.)

The Government of the Republic is democratic and representative, and is carried on under the Con-

stitution of 1860, which is the last of eight different Constitutions which have from time to time been promulgated. The Legislative, the Executive, and the Judicial are the three main branches into which the Administration is divided, and all three are carried on independently of one another. Neither hereditary nor prescriptive rights are recognized. Congress alone is privileged to impose taxes, while all public servants, even those occupying the highest offices under the Government, are amenable to the Courts. The Constitution grants freedom of the press, immunity from arrest except upon direct order of a Judge, the inviolability of all private correspondence, the freedom of trade and industry, the sanctity of the home, the right of assembly, and the privilege of petition.

The Executive consists of a President, who is elected for a period of four years by the general vote of the nation; two Vice-Presidents and six Secretaries of State, or Ministers, each having charge of the following portfolios: Home Department, State Department, Department of War and Marine, Department of Finance and Commerce, Department of Justice, Department of Public Works, and Fomento (Promotion).

This last office is one which is found in all the Latin-American States, and its equivalent is difficult to define, because it really does not exist in any other countries. Its object is to "promote" enterprise and to encourage undertakings likely to be of some advantage to the nation; and the Government usually construe the definition very liberally, extending a helping hand to, and supporting financially, many schemes—as often as not the ventures of foreigners—which may attract their approval and merit their assistance.

The Legislative Power consists of two Houses, known as Congress—the Senate and Deputies. The Senate are composed of representatives who are elected by the Departments, each returning from one to four members, in proportion to the number of Provinces of which it consists. The Deputies are composed of representatives sent up from each of the Provinces, or for each 15,000 to 30,000 inhabitants. Both Houses are elected for a period of six years. The members must, however, be Peruvian-born, and, in order to be eligible, must be over twenty-five years of age. Senators must have attained thirty-five years.

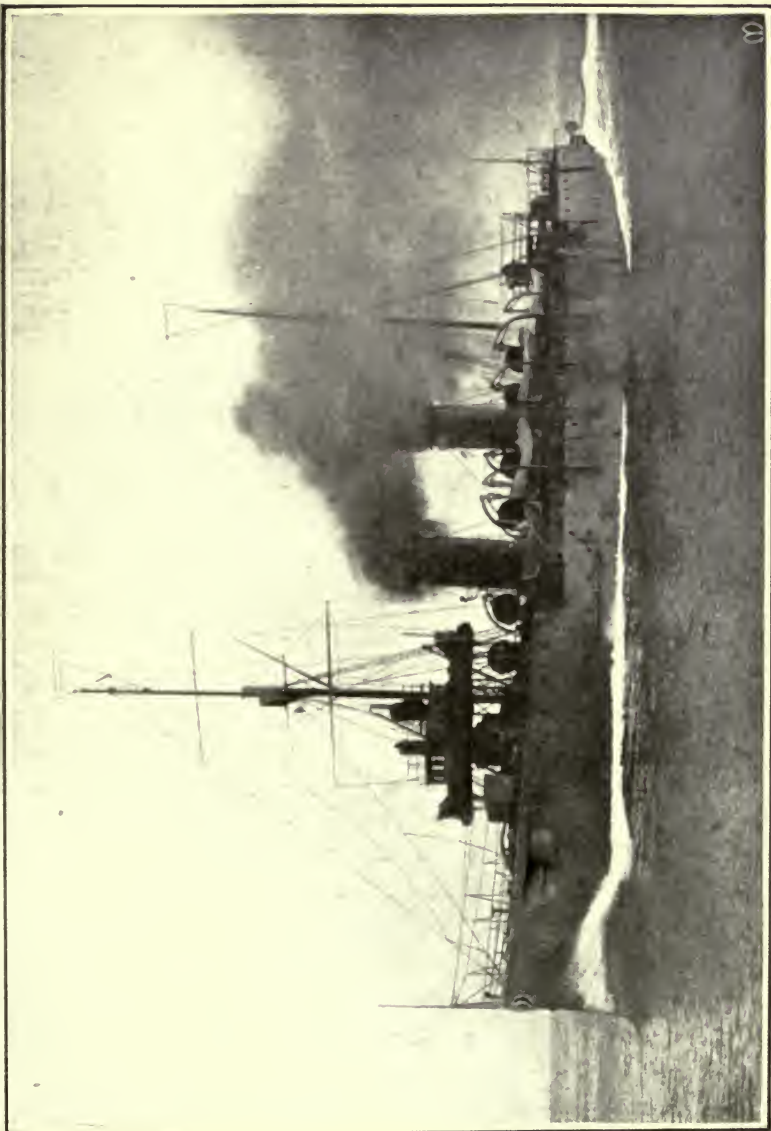
The local Government of the Republic is particularly well distributed, being in the hands of Municipal and Departmental Boards. The Municipal Boards consist of members elected by popular vote, and are known as Provincial Councils and District Councils. The first-named serve the Provinces, and the second the Districts. With the exception of educational matters and control of the police, these Councils have a very free hand, and, as a general rule, they carry out their functions both intelligently and honestly. All such offices are filled without remuneration, while the revenues are derived partly from municipal-owned property or enterprises, but principally from local taxes, known as *arbitrios*. To impose these, however, the sanction of the Executive Government is necessary. The Provincial Councils act as a kind of healthy check upon the proceedings of the District Councils, and possess the right of revising their decisions. And they very often do so.

Finally, there are the Departmental Boards, whose duties consist in attending to public works, the erection of bridges, the construction and maintenance of public roads, assisting at the conduct of education,

and distributing charities. They can also revise and overrule the acts of the Provincial Councils.

During the disastrous Pacific War of 1879 to 1884, when peace with Chile was proclaimed, and which has since been kept, although sometimes with difficulty, the Peruvian Navy was completely destroyed. With the gradual revival of financial prosperity, the Government of the country has devoted its attention and as much of its revenues as could be safely spared, to a reconstruction of this maritime defence, and year by year sees introduced an addition here and a perfection there. The Navy proper is composed of three twin-cruisers, which bear the names of some of the many heroes of the unfortunate war referred to, such as *Almirante Grau*, *Coronel Bolognesi*, etc., and three transports, etc., the whole number of vessels amounting to about fourteen. At the end of the current year (1911) the Republic will have five auxiliaries to her naval power in the event of war, as the vessels of the Peruvian Steamship Co., all of the type of the *Ucayali*, are now being subsidized as auxiliary cruisers by the Peruvian Government.

In regard to equipment, the Peruvian Navy is now being gradually and effectively provided with all the latest scientific inventions of value. For instance, a complete wireless telegraphy outfit, devised and perfected by Señor Don Guillermo Wiese, of Callao, has been installed on the cruiser *Lima*. The vessel is thus enabled to communicate with others carrying wireless installations within a 100-mile radius. Professionals are on the alert as to the outcome of Señor Wiese's invention, which, according to those who have seen it in operation, is perfect and reliable in every way. The Government's decision to equip the *Lima* with his system should in a great measure serve as an encouragement to the inventor, Señor Wiese, who has



GOVERNMENT CRUISER "ALMIRANTE GRAU."

Name.	Class.	Material of which Built.	Displacement.	Length.	Breadth.	Depth.	Number of Projectors.	Nominal H.P.	Where Built.	Date Built.	Extreme Speed.	Armour.
<i>Almirante Grau</i>	Cruiser	Steel	3,200 tons	111 mm.	12·18 mm.	7·29 mm.	2 screws	14,000	Barrow-in-Furness	1906	24 knts.	2 of 152 mm. 8 machine guns.
<i>Coronel Bolognesi</i>	Cruiser	Steel	3,200	111	12·18	7·29	2 screws	14,000	Barrow-in-Furness	1906	24	2 of 152 mm. 8 machine guns.
<i>Lima</i> ...	Cruiser	Iron	1,790	77·70	10·30	5·70	2 screws	2,000	Kiel, Germany	1880	14	4 of 10 mm. 2 machine guns.
<i>Constitución</i> ...	Transport	Steel	1,693	100·42	12·19	8·23	1 screw	1,868	Newcastle-on-Tyne	1886	10	2 of 152 mm. 2 machine guns.
<i>Iquitos</i> ...	Transport	Steel	2,083	105·0	12·75	7·72	1 screw	2,100	Whiteinch, Glasgow	1894	11	4 of 47 mm. 2 machine guns.
<i>Chalaco</i> ...	Transport	Wood	239	42·60	9·60	3·90	1 screw	200	San Francisco, U.S.A.	1884	8	2 of 87 mm. —

In the month of July last (1911) the French armoured cruiser *Duguay de La Motte* was being thoroughly overhauled and repaired with a view to being sold to the Peruvian Government. It is a fine vessel, and will form a notable addition to the Peruvian Navy.

spent several years in studying and perfecting it. During the visit of the United States battleship fleet in 1909, the inventor, with the incomplete elements of which he then disposed, established a wireless station, and successfully communicated with several of the vessels.

Historians have declared that had the ancient Peruvians been a more warlike race the Spaniards would probably never have become so completely their conquerors. Certain it is that the Incas established so complete a peace throughout the land, and, by a marvellous system of true socialistic government, supplied the people with all their material wants, that they lost the art of war, and this benevolent despotism unmanned them.

That their descendents of to-day, however, have regained whatever fighting propensity they may have lost is proved by the heroism displayed by the Peruvians during the last war with Chile, as well as during the many previous struggles with Spain and among themselves. In all probability the Peruvian soldier of to-day is the toughest, as he is unquestionably the most amenable and malleable fighting, material in the New World.

In the year 1896 the whole of the Peruvian Army underwent complete reorganization, the Government having, under the newly-elected President Nicolas de Pierola, enjoyed the services of a number of distinguished French officers, known as the French Military Mission, to carry out the reforms. This Mission consists of: The Lieutenant-Colonel, who is the Head of the Mission; 2 Cavalry Captains; 2 Infantry Captains; 2 Artillery Captains; 1 Engineer Corps Captain; 1 Veterinary; 1 Farrier; 2 Gymnastic Instructors. The Head of the Mission ranks in Peru as a Brigadier-General, the Captains ranking as Lieutenant-Colonels and the

Lieutenants as Majors, as does also the Veterinary. No special rank is awarded to the Gymnastic Instructors.

Every deference is paid to the Head of the Mission, his advice being solicited—and, what is more, practically always followed—in matters connected with instruction and the organization of the Army. He is subject, however, to the orders of the War Department. One of the Captains is in charge of the Military High School, while another acts in a capacity at the Military Academy at Chorillos; the similar other officers act as Inspectors of Musketry. The officers wear French uniform, with the insignia corresponding with their rank in the Peruvian Army.

According to the Army List of 1905, the Peruvian Army consisted of the following :

Generals on the Active List	...	...	...	...	7
Brevet Colonels	...	...	...	...	99
Brevet Lieutenant-Colonels	...	...	...	...	11
Brevet Majors	...	...	...	...	20
Brevet Lieutenants	...	...	...	...	7
Full Colonels	...	...	...	...	36
Lieutenant-Colonels	...	...	...	...	94
Majors	...	...	...	...	129
Captains	...	...	...	...	211
Lieutenants...	...	...	...	...	235
Sub-Lieutenants and Ensigns	...	...	...	...	142

The rank and file are composed of the following :

Artillery.—One regiment of mounted artillery, with three groups of three batteries, and 500 men with a detachment of a further 28 men at Loreto.

Infantry.—Seven battalions, each consisting of four companies; a section of the line is for staff service, and a detachment of 30 men in the mountain section of Cuzco.

Auxiliary Corps.—General Army Commissariat, Ordnance Store, Military Health Department, Supreme Military and Naval Council

Armaments.—The infantry are armed with Mauser rifles of 78 mm. calibre; the cavalry and the mountain artillery with the carbine of the same model; the artillery with field batteries of the latest type of Schneider-Canet make.

The new military law of December 27, 1896, seems to have been a very drastic and complete ordinance, entirely remodelling the rules of serving and also the length of service. Up to that time there had been no conscription in Peru, the fighting force of the country being formed by recruiting almost entirely from among the aborigines. The officers were obtained by drawing from among the students of the old Military Academy.

To-day, the standing army is formed of both volunteers and conscripts. These latter are recruited from each Department impartially, all boys of nineteen years being eligible. They serve four years in the artillery and cavalry, and three years in the infantry. Evasion of immediate military service can be arranged by payment of 500 *sols* (£50), by securing immunity from drawing lots; the successful evader then passes to what is known as the supernumerary list. To escape immunity entirely is impossible. By a payment to Government of 1,000 *sols* (£100), the young men who would rather not join the regular army are placed in the first reserve, the supernumeraries forming thus a tangible and useful *dernier ressort* in the event of a long and exhausting war.

The first reserve consists of ex-soldiers, up to thirty years of age, and married men and the students from the Universities or Technical Schools between nineteen and thirty years of age. The second reserve is formed of men between thirty and thirty-five years of age. In conjunction, these two reserves are Departmentalized, in each political division there being a battalion of

sappers consisting of 448 men ; in eleven of them, cavalry squadrons of 169 men ; while Lima musters a corps of each arm, the artillery being a mounted section consisting of 650 men.

The National Guard is composed of men from thirty-five to fifty years of age. In the event of casualties occurring in the regular and permanent army, replacements are drawn firstly from the volunteers, secondly from reserves, and thirdly from the conscripts. Although Peru has a population of over 4,000,000, every year provides 40,000 youths—or 10 per cent. of the population—of nineteen years of age and upwards. All these are subject to draw lots, but only about 1,500 or 1,600 are actually drawn.

Peru is divided into four military districts, which are subdivided again into eleven conscription areas, comprising the twenty-two political Departments. The capitals or headquarters of these districts are : Northern, Piura ; Central, Lima ; Southern, Arequipa ; Eastern, Iquitos.

The General Staff was further reorganized in 1904, and is now placed upon the same footing with, and analogous to, the staffs of all European Armies. The Head, who is the Chief of the French Military Mission, has under him a Commander and an Assistant Commander, whose commands are subdivided as follows : Organization and Instruction ; Tactical and Statistical Studies ; Technical Studies ; Topographical and Geographical Studies.

To all who have seen the Peruvian soldier on the march and in the field of manœuvres, it must be apparent that the instruction carried out by the French Military Mission, under Colonel Clément and other distinguished French officers, had been of the utmost value to the country. Just as the naval instructors from England transformed the navy of

Chile into an admirably efficient arm, so has the thorough training undertaken by the French officers raised Peru to the position of one of the most powerful fighting forces in South America. The average *peon* does not, at first, afford the idea of becoming a very promising addition to an organized army. But in actual experience he makes an excellent piece of fighting material. He is absolutely faithful to his officers; he is docile, amenable, contented with little—and sometimes with nothing—to eat; he is accustomed to sleeping anywhere and anyhow; he can climb up mountains like a cat and slide down precipices like a deer; he does not know what physical fatigue means; in the bivouac, on the march, or in battle, he is always the same—perfectly serious, wholly unemotional, and he fights like a man who knows neither fear of death nor any scruple in dealing it. Bravery and endurance are so common among the Peruvians that they would not understand any praise for possessing these virtues, nor could they comprehend any lack of them among the men of other nationalities.

The first President of Peru who attempted to reorganize the Army and Navy was neither a military nor a naval man, but, on the contrary, a stern opponent of military dominance in the government of the country. Señor Manuel Pardo, who became Constitutional President in 1872, established as a preliminary step the schools for Corporals and Sergeants, as well as that for Midshipmen of the Navy; the School of Science and Art; the School of Engineers; the Faculty of Administrative and Political Economy, and he reformed the Military and Naval Academies. Unfortunately, from the very beginning of his régime, Pardo was confronted by the lack of money and the practical bankruptcy of the country (see

Chapter VI.). President Nicolas de Pierola added some artillery barracks in 1897. The total mobilization force of the Army is certainly nothing less than 24,000 men, quite apart from either the reserves or the territorials.

The President (Don Augusto B. Leguía), in his speech to Congress delivered at Lima on July 29, 1911, concluded as follows :

“I intend to continue acquiring war material. Peru's policy will always be peaceful. Peru will offend none, but will not permit anyone to offend her with impunity. I feel sure that my policy will dissipate all clouds on the horizon. I hope a year hence to transfer the presidency under conditions of peace and order which will prove that Peru has advanced to full Republican stability.”

CHAPTER V

Government (*continued*)—Sanitary organization—Medical Board of Health—Marine Sanitary Service—Lima Board—Isolation at ports—Telephones—Telegraphs—Improvements effected—Wireless station—Postal services—Increase in mail-matter—Peruvian and British methods contrasted—The carriage of newspapers and other publications—Aviation encouragement.

WITH commendable good sense, the Government of the Republic—no doubt inspired and encouraged by the excellent results which had attended the sanitary purification of the once pestilential Panamá—have devoted much time and more money to introducing a very comprehensive and complete sanitary organization throughout the country, and especially in the Capital. The Republic, as a whole, is free from many of the terrible tropical diseases which are prevalent in these latitudes. Yellow fever, sleeping sickness, and leprosy are almost unknown, and in any case they have seldom attained any great headway among the people. Other diseases are, perhaps, no worse in their frequency nor more disastrous in their consequences than those in any European country.

In 1903, signs of bubonic plague were observed, and this was the first time that any appearance of the much-dreaded disease had occurred. Immediately it was detected a sanitary service was organized, and a Board of Public Health was instituted. The most competent and experienced among medical and scientific men were invited to join it, and did so. The disease was attacked promptly and scientifically, with

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LIMA : SCHOOL OF MEDICINE.



LIMA : THE GOVERNMENT HEALTH INSTITUTE.

the result that not only was it prevented from spreading, but was soon completely banished. It has not since recurred, except in one or two isolated imported cases.

Although far from attaining that completeness of efficiency which will, no doubt, be achieved in course of time, the Medical Board of Health has proceeded far ; and, in addition, there has been formed a Superior Council of Hygiene, composed of several celebrated men of science, and notable members of the Faculty of Medicine and the National Academy.

Then there is the Marine Sanitary Service, which is divided into three principal centres—one at Callao, the principal port of the Republic ; one at Paita, a northern port of only second importance ; and the third at Ilo. Upon arriving at any of these ports ships are subjected to a very careful and thorough examination, no doubt a little irksome to the officers and the passengers, but absolutely necessary under the circumstances. Each centre has a properly qualified medical staff, and only the most modern of equipment is used for disinfecting the vessels. Other Peruvian ports maintain medical officers, who are instructed to keep a watchful eye upon all incoming vessels and to make periodical reports to one of the three principal centres. For the regular lines of coasting-vessels calling at Peruvian ports, there exists a special service of sanitary inspectors, who continually travel up and down the coast on the ships, and maintain a keen outlook for any sign of infection on board. The Government reserves the right to detain and disinfect any ship if it is found to be necessary.

It is interesting to note that Peru was one of the South American countries which signed the Washington Convention for International Sanitary Control, and the Government regulations are in accordance with

the rules and regulations laid down by that Convention.

So far as the interior arrangements for sanitary control are concerned, the cities and towns have their own local bodies, which are composed of municipal officials under the supervision of the local medical officers of each Province, who, on the other hand, receive direct instructions from the Lima Board of Health.

Isolation stations are established in Lima as well as in other principal towns, where patients are received who may be detained upon their arrival from infected ports. Lima has also constructed a special hospital for smallpox cases, a disease which at one time was very frequently met with, but now is almost exterminated. The National Institute for Vaccination, in conjunction with the Local Vaccination Board, have done much excellent work in the direction of eradicating this horrible disease.

The telephone system has been installed throughout Peru; but here, as elsewhere in South America (Buenos Aires, Santiago de Chile, and Valparaiso excepted), the system leaves something to be desired. Poor as it is, however, in some parts of the Republic, I think it less hopeless than the National and Post Office systems of England—anything more aggravating or more inefficient than these one could hardly find in any big city the world over.

The telephones in Lima are in the hands of a Company, which has a vast network of wires to neighbouring towns and hamlets to deal with, and numerous—mostly dissatisfied—subscribers. The main cities, such as Arequipa, Cuzco, Trujillo, Piura, Cajamarca, Cerro de Pasco, Huánuco, and Ica, have their own systems. The total distance covered by the telephone wires for public use in the whole Republic

exceeds 12,000 kilometres, besides the numerous private installations.

Smaller Companies have been from time to time formed—there being no pernicious monopoly in Peru as there is in “free” England—along the coast, and a fairly complete installation now spreads from north to south. For instance, a local Company established in Los Andes has direct communication with another at Pacasmayo, and with yet another so far as Cajamarca—a distance of 196 kilometres. While, as I have said, it is open to anyone and everyone to install the telephone in Peru, the inspection and control of overhead wires repose in the hands of the Government; that is to say, they are under the management of the Post and Telegraph Department. By general consent it is admitted that at no time within the economic history of the country have these two services attained a higher degree of efficiency than during the régime of the Leguía Government. Having had much occasion to avail myself of both, I fully endorse this expression of commendation. The many public servants employed—both male and female—are noted for their extreme politeness and attentiveness. How much might some of our haughty and impertinent officials learn from them!

Wireless telegraphy, the apparatus for which has now been fitted to the Peruvian Navy vessels, was first introduced into Peru in connection with an agreement with a German Company—Telefunken - Gesellschaft—which erected experimental stations at various points, and encouraged by the success achieved in some directions, the Government determined to adopt the radiographic service, to operate in the extensive zone of the Amazonic Delta, a region which embraces an area exceeding 200 kilometres—namely, from Puerto Bermudez, on the River Pichis, to Macisea, on the River Ucayali. These

were the earliest experiments which had been made with radiography across a territory so completely covered with dense tropical vegetation.

Ordinary telegraph wires erected in these regions are not only subject to deterioration and ruin by the damp atmosphere, which in any case has a very bad effect upon them, but they are not infrequently destroyed by falling trees or completely covered up in their extraordinarily rapid and vigorous growths.

The first stations for the wireless installations consisted of three towers, each being 45 metres in height (about 147 feet). The system was next extended to Iquitos by means of intermediary stations; and subsequently to the *montaña*.

It is interesting to recall that some years ago Brazil attempted, but without success, to establish wireless telegraphy through the dense forest regions, and which resulted only in a repetition of the failure made by the Belgians in the Congo. While I was in Rio de Janeiro last March (1911), the Minister of Posts and Telegraphs kindly explained to me the whole matter of installing wireless telegraphy throughout the Republic, and mentioned incidentally that Signor Marconi was very anxious to obtain the contract, but his prices were so "unreasonably high" that the Government had decided to pass by his tender, and probably would award it to the De Forrest Wireless Telegraph Company instead.

A new installation, including the erection of an 80-metre tower, is to be established on San Cristóbal Hill, which rises above the city of Lima to a height of over 1,300 feet, and therefore admirably suited to a wireless service. It is the intention of the Government to use apparatus of sufficient power to enable direct communication with Iquitos, which is separated by a distance of 700 miles. If this should



LIMA: BANK OF LONDON AND PERU.

prove impracticable, on account of the great height of the Andean ranges, the lowest point of which is 15,000 feet, an intermediate station will be equipped, and will doubtless prove effective.

Peru has seldom been far behind the rest of the world, and very often in advance of it, in introducing new inventions for public use. As we shall see later on, it was the first of the South American countries to build a steam tramway, as it was the first to introduce the Telefunken system of wireless telegraphy. The Republic may also lay claim to having erected one of the earliest electric telegraph lines—in 1864—that from Lima to Callao, separated only by a distance of seven miles, it is true, but a feat in those days, considering that the electric telegraph had only been invented and brought into use in Europe (London) in 1837. To-day there are over 5,500 kilometres of Government lines—the State took over the administration of the telegraphs in 1875—while another 1,000 kilometres remain in the hands of private parties by arrangement with the State. In 1910 a further 696 kilometres were built, as against but 452 in 1909.

The administration of the telegraphs is divided up into different zones, each of which is under the surveillance of an Inspector, and all of whom are responsible to, and controlled by, the General Direction of the Service at Lima. Altogether there are some twenty-three central offices, 231 local offices, twenty inspection districts, and 10,288 kilometres of line in operation. A staff of not fewer than 350 persons is employed. The Government owns all the lines with the exception of the railway telegraphs, but these are also available for public use.

The rates charged to the public are not by any means excessive, being 40 cents (about 10d.) for a telegram up to ten words, including the address and

signature, and 4 cents extra for every additional word. Special press-rates are enjoyed, newspapers being granted a reduction of 75 per cent. from the usual charges. The telegraph system of the Republic joins on to the lines of Ecuador and Bolivia, which, in their turn, are worked in connection with those of Colombia, the Argentine Republic, and Chile. With the rest of the world cable communication is maintained by means of the West Coast of America Telegraph Company and the Central and South American Telegraph Company.

In conjunction with the other West Coast countries (Colombia and Chile), Peru is linked on to the European systems at St. Vincent, while the Central and South American Company has also cables from North America to Valparaiso, via Colón (Panamá), or Vera Cruz and Salina Cruz (both in Mexico).

All those who have lived in Latin-American countries, and especially in Brazil, have experienced the difference which a good and a bad postal service can mean to pleasant and profitable residence; and whether he be merely a transient visitor, dependent perhaps upon the mails for his future guidance, or a permanent resident, who relies upon it to conduct his business transactions, the regular and dependable dispatch and distribution of the mails are of the greatest importance.

In Peru no branch of the Peruvian public service has been more radically reformed than this, and to-day the Postal Department is found to be among the most efficient of any in the Republic. Not only is correspondence faithfully and speedily delivered, but it is absolutely, and at all times, safe from pilfering or suppression, which is seldom, I fear, found to be the case in some of the smaller States, such as those of Honduras, Nicaragua, and in at least one of the larger—namely, that of Brazil.

Over so extensive a territory as that of Peru, the organization of a thoroughly efficient postal service has been a matter requiring much care, patience, and time, but it has been effected, and the results are entirely satisfactory. Pace has been kept with the rapid increase in the trade and population of the country, and this expansion augments day by day.

Although, by a special regulation of the Government, the receipts of the Post Office do not find inclusion in the General Revenue, in practice they are sufficient to meet all the ordinary expenses, while for the past five or six years they have yielded a considerable surplus. For some time previously the Peruvian Government had been in debt to the Postal Union in regard to its contribution; but so well have the affairs of the native postal arrangements been handled of late that every *centavo* formerly in arrears has long ago been cleared off. The steadily rising income derived from the sale of stamps, fees on parcels, extra postage upon correspondence, and commission upon money-orders, now enables the Post Office to deal fully and without hesitation with all matters of expenditure coming within its department.

From 1900 to 1905 the total revenue from these different sources increased from £32,250 to £58,276, or an improvement of £26,026. When we remember that in 1898 the whole revenue scarcely exceeded £26,000, we see that in some seven years the income from these receipts has more than doubled. The total increase of mail-matter carried within this period (dating from 1901 to 1905 only) was over 7,850,000 items. For the past year (1910) a further substantial increase has to be recorded, and the Government has been abundantly rewarded by the results attending the increased authorized outlay upon the Postal Service.

Since July, 1910, more attention has been devoted to issuing postal statistics, and the department charged with this work is now both well organized and well maintained.

The administrative service is divided into different districts, or "Principal Post Offices," the most remote being at Pala, in the north, and close to the frontier of Ecuador. The most distant in the south are Desaguadero and Sama, upon the frontiers of Bolivia and Chile. In the east there is a principal post office situated at Iquitos. There are now twenty-four principal offices in all, while fifteen years ago there were but seven for the whole of the Republic. Foreign money-orders can be obtained for any of the European countries, the United States of America, and practically for all of the Latin-American States.

The Head Post Office building in Lima is a magnificent and ornamental structure of pure white stone, with massive bronze railings to the windows, and surmounted by imposing bronze statues. It is open to the public day and night and every day of the year, Sundays included. The clerks employed are male and female, and the public are treated with the utmost courtesy and consideration.

The Parcels Post organization in Lima (the central office for all such items) is particularly efficient, the least possible trouble being given to those who either send or receive parcels; far different, indeed, to either Rio de Janeiro or Buenos Aires, where dispatchers or recipients of foreign parcels are regarded by the officials almost in the light of criminals, and are treated with about as much courtesy or consideration.

A great improvement in the Peruvian service was effected by the establishment of the principal office at Iquitos. It is now possible to conduct all business from that office direct with foreign countries, whereas

formerly everything had to pass, for the purposes of Customs examination, through Lima.

The Government, with the increased revenue, has consistently reduced the rates for postage, and has not sought to make the Postal Service a means of large profit. Such has been for many years the policy with the British Government. Another liberal and sensible principle—one which it would be illusive to suppose our archaic postal authorities would ever adopt—is to carry all newspapers, whether political, scientific, commercial, or literary, free of charge within any portion of the Republic. I believe that the same regulations are adopted in Australia, Canada, and the United States, the Government thus increasing the utility of the press and affording at the same time a valuable impetus to local trade. So far from carrying trade publications free in Great Britain, our enlightened Government actually penalizes the owners by making them pay at higher rates than those charged upon ordinary newspapers, and enforcing harsh and unreasonable restrictions as to the exact proportions of reading-matter and advertising-matter, the size and number of the supplements, etc.—in a word, rendering as difficult and as onerous as possible the conducting of a trade publication, in contrast to the beneficent and discriminating policy of Peru.

As may well be believed, the Government would not allow the study of aviation to lack support, more especially since the attention of the whole world was but a year ago drawn to the heroic Jorge Chavez-Dartnell, the Peruvian airman, who was the first human being to cross the Alps on a flying-machine. The Government, at the time of this young aviator's death, subscribed £1,000 towards the cost of a monument, which has just been erected at Lima, to his memory; and now it has given its patronage to a National

School of Aviation, the first establishment of its kind in South America.

The School has recently been opened at Lima, the Director being Señor Juan Bielovucich, and his assistant Señor Henri Chailley. The attendance is limited to twelve pupils, and of these the Government is paying the tuition of eight. The tuition-fee is £180, and the pupils will be held responsible for all damage done by them to the apparatus. The machines in use at present are Voisin biplanes, imported from France, and equipped with Gnome motors.

There already exists one notable airman's club, the Peruvian Pro-Aviation League, which was organized in the month of September, 1910. The President is General Pedro E. Muñiz. Societies have since been organized at Lima, Callao, and other cities.

CHAPTER VI

Finance—Loans and their history—Period of prosperity followed by severe restriction—Extravagance of former Governments—Guano revenues—Restoration of Peruvian credit—Recent borrowings—Arrangements with British creditors—Peruvian Corporation—Municipal loans—Tax-collecting Agency—Revenue and expenditure—Customs receipts—Foreign commerce—Budget for 1911-12.

PERU, in regard to its national finances, has not escaped the troubles and complications which have been common to all the Latin-American States—and most of the European—in their evolution of progress ; but it differs from them in this respect—viz., it has had to face most of its difficult economic problems as a consequence of the several changes of administration which came about during the early years of its independence. A special volume might be written upon the development of the finances of Peru ; and it becomes a matter of some difficulty to compress within a single chapter anything like a comprehensive review of the country's past financial conditions. ✓

The first loan raised by the young Republic was in 1822, for the sum of £1,200,000 at 6 per cent. interest. So little confidence did the English issuing house have in the financial stability of the young country that they insisted upon deducting three years' interest—that is to say, the sum of £216,000—while, of the balance, less than one-half was handed over in cash, the remainder being in the form of munitions of war—quite the usual practices of the usurer. As may be believed, this amount did not

last very long; and three years afterwards—namely, 1825—a second loan was contracted in London, also at 6 per cent. interest, and this time for the sum of £1,500,000; but it was impossible to place more than £716,516.

At this early period, then, Peru found itself in debt to the extent of £2,700,000, *plus* £1,300,000 due to Chile and Colombia, for the assistance they had rendered during the War of Independence, or, a total indebtedness of £4,000,000, representing considerably over a *capitat* of £1 for every man, woman, and child in the country. No mention is made here of the Home Debt, which had also accumulated to a considerable amount, but which was left unliquidated, and was eventually permitted to die out naturally.

At this time (1825) the Government revenues consisted of various taxes, of which the principal was the tribute levied upon the natives, and which took the place of the tax which had previously been levied upon the Indians by Spain. Although estimated at \$2,000,000* (£400,000), barely more than 75 per cent. of this tax could be collected, and such amount as was realized, *plus* the Custom House dues, barely reached the \$2,000,000 hoped for. The total value of the country's production did not exceed \$11,000,000, nor its exports much more than \$8,000,000.

Shortly afterwards (1830) a reorganization of the country's finances was attempted with but poor results, and Peru found itself unable to attend to the service of its Foreign Debt, which still reached, including capital with accrued interest, £2,310,767, after making allowance for the small amount which had already been repaid. The country's Home Debt at the same time amounted to nearly \$18,000,000 (£3,600,000), so that, in all, the public indebtedness amounted to £5,670,767.

* The Peruvian dollar (or *sol*) has been estimated as worth 4s.—*i.e.*, \$5 = £1. To-day, 1 exchange = 24d. or 10 *soles* = £1.



NEAR URCOZ, ON THE CUZCO EXTENSION OF THE SOUTHERN RAILWAY.



THE VOLCANO OF "MISTI" BY MOONLIGHT, SHOWING THE HARVARD OBSERVATORY.

How slow was the march of improvement in the country's finances is seen from the fact that ten years later (1840), the total amount of the public revenues did not exceed \$3,000,000, notwithstanding the fact that those of the Custom House had more than doubled; for it was from this time forward that the product and the sales of guano commenced to figure as a principal factor in the Government revenues. I deal with this phase of Peru's industry in a separate chapter.

At about this time (1840) a new loan was contracted in London for £3,736,400, which was to supersede and cancel the two loans of 1822 and 1825. Owing to the financial improvement brought about by the success of the guano sales, the country soon commenced to shake itself free from its most pressing financial troubles. The whole internal debt was liquidated, being consolidated in bonds bearing 3 per cent. interest.

In 1850 we find that the Public Debt of Peru was made up as follows:—

Home Debt, consolidated in bonds at 3 per cent. interest	...	...	...	\$	5,662,900
Foreign Debt	...	...	...		18,682,000
Debt to Chile	...	...	...		4,000,000
Floating Debt	...	...	...		2,500,000
					<hr/>
Total	...	...	...	\$	30,844,900

Now commenced a period of reckless extravagance and lavish outlay, which, in spite of the industrial wealth which the country was producing, soon plunged it once again into financial trouble. How much the guano sales meant to the country is seen from the fact that, for the first time in the financial history of any independent State in the world, Peru was able to conduct the whole of its Government without recourse to private taxation. Blinded by the visions of unlimited wealth opening before it, the Government

of that day failed lamentably to organize its finances upon a sound and definite basis, but, on the other hand, continued to borrow, heedless of consequences and at usurious rates of interest. By 1860, the annual expenditure exceeded \$20,000,000 (£4,000,000), a sum which amounted to more than double that had been expended during the first years of independence. At this period the revenue outside the guano sales did not exceed \$4,000,000 (£800,000), of which the sale of stamp-paper contributed \$500,000 (£100,000), and Custom House dues \$3,500,000 (£700,000).

At length arose a wise man in Israel, who, foreseeing the disaster which must inevitably occur to the country from the financial imbroglio in which it was involved, he—namely, Señor Don Manuel Pardo, then Minister of Finance—determined, as a preliminary measure, upon forming upon a monetary system a conversion of the debased Bolivian coins (which were then circulating in Peru at par, although of a lower standard), and prohibiting for the future the importation of any foreign money which should not rank as “standard.” In order to carry out this programme, it was necessary that the outstanding debt should be consolidated, and the old foreign debts of Peru—the Anglo-Peruvian, the Deferred Stock, the so-called Urribarren Debt, and the Arica and Tacna Railway Debt.

Once again the Government came to London to borrow, and in 1862 contracted for a loan of £5,500,000 at $4\frac{1}{2}$ per cent. interest and 8 per cent. annual amortization. The issue price was 93 per cent. The security offered was the general guarantee of all the Government revenues, including the product of the sales of guano in the United Kingdom and Belgium. After the conversion of the old loans had been effected, the Government found itself in pos-

session of £2,400,000, of which about £1,000,000 sterling was remitted to Lima in the form of gold-bars.

Although the exchange of the Bolivian money to that of Peru had been effected with advantage, and as a consequence the finances of the country had been placed upon a somewhat better basis, troubles still continued; for while the expenditure had reached 24,000,000 *sols*, the revenues only amounted to 16,000,000 *sols*, leaving a deficit of 8,000,000 *sols*. Then came more trouble in the form of a short but costly war with Spain, which country had seized the Chincha Islands, these being the principal guano deposits, and consequently the source of Peru's main financial revenues. The Spanish War necessitated a further loan being raised, and for the third time within a few years Peru came to London to borrow another £10,000,000 at 5 per cent. interest and 5 per cent. amortization. The new loan was intended to be a conversion of the old foreign debts; but only £7,000,000 of it were actually placed. Of this amount, after deducting all expenses and converting the above-mentioned debts, and the payment of sundry urgent amounts due in Europe, there remained £1,300,000 for the use of Peru.

Political troubles in the country broke out in 1867, which resulted in a new constitutional régime being formed in 1868. The new broom swept no cleaner than the old, and Peru continued to spend recklessly and to borrow heedlessly. In 1869 a further small loan for £290,000 was placed in London at 71 per cent., bearing interest at 5 per cent., for the construction of the Pisco-Ica railway. This was followed by another issue in 1870, for the considerably increased amount of £12,000,000 at 6 per cent., issued at 82½ per cent. The net amount received by the Government in this

case was £10,500,000. Two years afterwards (in 1872) a further loan for £15,000,000 sterling at 5 per cent. was raised, the country by this time having to find about £1,470,000 annually to pay the interest on these various foreign debts.

Still unsatisfied, the Government decided upon yet further borrowing, and attempted to place a fresh loan for £23,215,000. This effort, however, ended in disaster; for whereas it was believed that it could be placed at $77\frac{1}{2}$ per cent., the actual price obtained did not exceed "64.36 per cent.," so that out of the whole sum of £23,215,000 relied upon, the Government received no more than £13,000,000. The outstanding foreign debt of Peru at this time (1872) stood at £35,000,000, requiring an annual interest and amortization of no less than £2,700,000. This was the precious legacy left by the well-meaning, but financially disastrous, Government of President Balta; and it now needed something like a financial genius to arise and unravel the complicated muddle which had been left behind.

The burden of setting right the finances of the country was taken up energetically by the new President, Señor Manuel Pardo, who found a terrible state of affairs confronting him. The annual expenditure had now reached nearly 21,875,000 *sols* (of 40d.), while the entire receipts did not exceed 8,677,000 *sols*, 6,000,000 *sols* of which were derived from the Customs Houses. Over 31,000,000 *sols* were due to the Government by Customs Houses, which sum had never been paid during the days of financial and political stress; while the Government was indebted to different constructors of railways and other public works for the sum of nearly 9,000,000 *sols*. The revenue from the guano deposits had fallen to less than £2,000,000 sterling, while the service

of the different foreign loans required, as stated above, about £2,700,000 annually to meet the interest.

President Pardo commenced his drastic reformation by cutting down the Budget, and so effectually, that the deficit became reduced to 8,500,000 *soles*. He reformed the tariff of the import duties; he issued Treasury as well as Home Debt bonds; he established a Government monopoly on nitrate production, and he introduced several other reforms. In spite of all these expedients, however, the finances of the country continued to go from bad to worse; and in 1874 Peru found itself practically insolvent and unable to keep up the service of its foreign debts in Europe. Added to its fiscal complications, however, the Government had obtained loans at a heavy interest from some of the local banks, which, according to the laws in force at that time, were empowered to issue notes payable to bearer at sight for three times the amount which they held in actual cash in their treasury. With the distress of the Government, the banks also came to grief; and the whole country was involved, more or less, in financial adversity. Firm after firm collapsed, and bank after bank closed its doors, only a very few of the more solid among the foreign houses continuing to stand against the pressure.

In 1876 the new Government, under General Prado, who had succeeded Señor Don Manuel Pardo, made a new arrangement with the banks, by virtue of which the latter granted the Government a fresh loan to enable it to meet some of its most pressing obligations. The State agreed to assume the whole responsibility for the banks' advances, the maximum of which was close upon 18,000,000 *soles*. The Government also took over the banks' unpaid paper, so that it became converted into a Government Note.

Just when the country was at length emerging

from its troubles occurred the war with Chile. As history has shown, Fortune declared against Peru, and at the end of the struggle with her revengeful neighbour, a war which lasted from 1879 to 1883 or the beginning of 1884, the Republic found itself despoiled of the principal sources of its fiscal wealth. Both its guano deposits and its nitrate-fields were confiscated, and nothing remained in the way of assets except its own 100,000,000 *soles* of paper money, which circulated with difficulty at 10 per cent. of the face value. Peru's foreign loans were quoted upon European markets at sensational discounts, and the finances of the country were now at about their lowest ebb.

The foreign debt being the most pressing, the Government hit upon the expedient of cancelling the large sums raised abroad, and which were nearly all due to European bondholders of the railways, by handing over to them the whole of the railway lines and other concessions, as well as making a substantial annual payment. To deal with this large undertaking a public body was formed, and it is to-day known as the Peruvian Corporation, Limited.

By the very opportune adoption of the gold standard, the Government now once again attracted the influx of foreign capital into the country, and from that time forth it has continued to flow in considerable amounts. From about this period (1885) also Peru has not only advanced materially in financial prosperity, but has evinced so unmistakable a determination to regulate her expenditure within reasonable limits, and so faithfully to maintain both her home and foreign obligations, that her financial position once more stands on a par with that of any other Latin-American State.

This fact was proved by the facility with which in 1905 the Republic was able to raise a loan of £600,000 at 6 per cent. interest and at 90 per cent., issued

through the German Transatlantic Bank, and which has since been cancelled ; and still more recently—namely, June, 1910, when £1,200,000 at 5½ per cent. was floated in France, with the proceeds of which the Republic paid off the bank's loan of £600,000 and the balance of another which had been receiving from 6 per cent. to 8 per cent. interest. The French loan will be amortized in twenty-eight and a half years from December 11, 1909.

The foreign debt of the Republic stands to-day as follows :

Annuities to the Peruvian Corporation	£80,000*
French Loan at 5½ per cent.	1,200,000
	<hr/>
	£1,280,000

At the end of 1909 there had been an unofficial statement current to the effect that a powerful French group of financiers were about to effect a new loan for Peru, the houses concerned being the Banque de Paris et des Pays-Bas, the Société Générale, and the Banque Française pour le Commerce et l'Industrie. The first-mentioned bank acted as intermediary in the settlement of the difficulties between the Government and its creditors in France over what is known as the "Guano Affair," who claimed about 25,000,000 francs (£1,000,000). The Deutsche Bank at first competed with the French banks for the loan, but drew out on being guaranteed a share in the transaction. This transaction would have had a twofold nature. In the first place, the French group would proceed to issue a first slice of £1,200,000, bearing 5 per cent. interest, destined in part to liberate the salt monopoly, which served as guarantee to the Peruvian loan of £600,000

* It is to be observed that this annual payment of £80,000 to the Peruvian Corporation was arranged by the Government of General Carceres, and was to continue for thirty years from 1893, so that the payments will terminate in 1923.

issued by the Deutsche Bank. The balance of this loan still unredeemed amounted in 1910 to £450,000, and there was a further debt to the Creusot firm amounting to £300,000, both of which were to be paid off out of the proceeds of the loan of £1,200,000. Then the Guano affair was for settlement, which was the principal object of the second loan.

Such a transaction would have a decided interest for British holders of the Peruvian Six per Cent. Gold Loan issued in 1906. The Government have had the option of repaying this loan at par on six months' notice since the time of issue, and a confirmation of its desire to get rid of it existed in the fact that an extra drawing, outside the ordinary Sinking Fund arrangement of 2 per cent. per annum, took place in 1908 to the extent of £32,350. At the commencement of 1909 the amount outstanding was £524,450, which has now been further reduced.

The ex-Minister of Finance and Commerce (Señor Enrique Oyanguren) had submitted to his colleagues a very sound scheme for dealing with the Internal Debt of the country. This amounts to a nominal sum of £3,859,000, but its present market value is assessed at £437,640.

There are two Internal Debt issues, authorized respectively by the laws of June 12, 1889, and December 17, 1898. The first of these draws an annual interest of 1 per cent. There remains yet a nominal amount of £2,660,000, which at the present market rate means an actual value of £359,100. The bonds of the second draw no interest, but are amortized each year by £25,000. The nominal value of these is £1,190,000, which at the present market rate represents an actual value of £78,540.

In addition, there are the deficits of the years 1908, 1909, and 1910, respectively £126,000, £131,000, and

about £50,000. This latter amount of £50,000 is being gradually paid off in accordance with the law concerning the liquidation of budgets. As to the deficits of 1908 and 1909, the Government will propose to Congress the negotiation of a loan, and doubtless they will be paid in full before the expiration of the present year.

The total actual value of the outstanding Internal Debt of Peru is :

Law of June 12, 1889	£359,100
Law of December 17, 1898	78,540
Deficits 1908-10	<u>307,000</u>
Total	£744,640

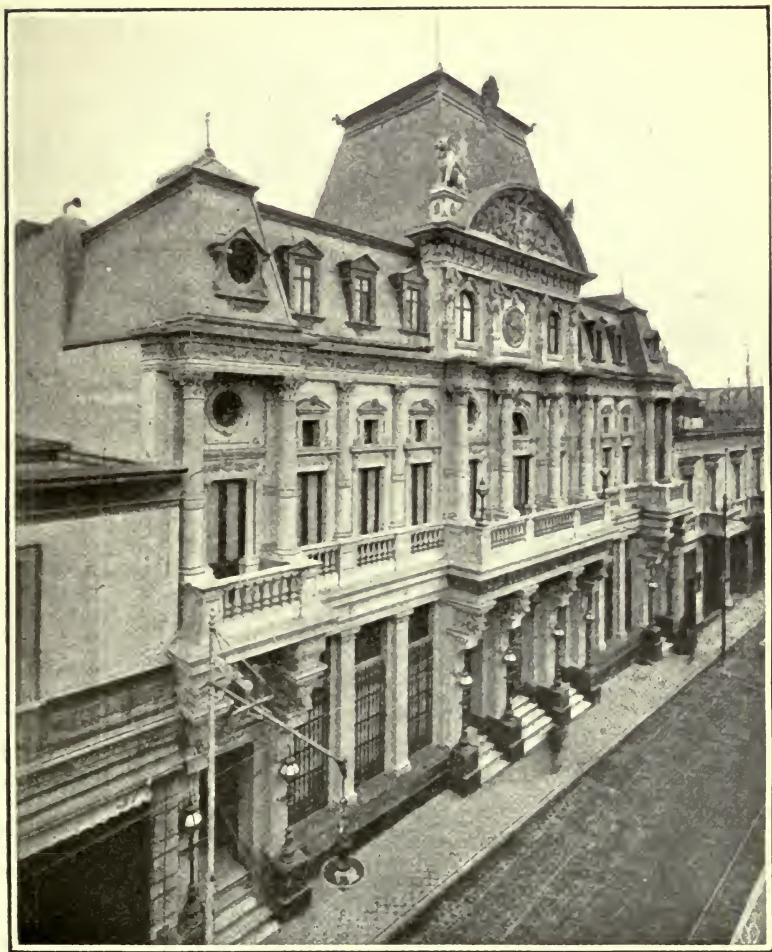
The ex-Minister proposed to make this up to a round million sterling by issuing a further £562,360, upon which an interest of 7 per cent. would be paid. The idea is, I understand, to adopt this as a temporary measure only, following it during the coming year with a 5 per cent. Conversion loan, raised externally. Peruvian credit now stands so high upon all the foreign markets that there will doubtless be some competition among bankers to place this new loan.

Last April (1911) the contract was submitted to the Municipal Council of Lima for a new bond-issue to the amount of £700,000, to be offered in £100 bonds, with interest of $5\frac{1}{2}$ per cent., payable half-yearly, and amortization being provided for, beginning May 1, 1916, the bonds being retired on or before May 1, 1950. The Bank of Peru and London would have taken, at 86 per cent., an amount of £590,000 for themselves and the London Bank of Mexico and South America ; while the firm of W. R. Grace and Company offered to subscribe for £110,000 for themselves and the National City Bank of New York. The proposal, however, was not carried out ; but, as I write, it is understood that a loan of £600,000 will be at no

distant date raised, and that it is likely to be offered at 90 per cent., and bear interest at 6 per cent. The city of Lima is also to receive shortly the sum of £100,000 in cash, which has been offered by the Lima Water Company in consideration of the extension of their franchise for a further term of forty years. It is highly probable that this offer will be accepted also.

The City of Lima Eight per Cent. Bonds, which were issued to the amount of £300,000, in accordance with a decree of October 8, 1903, offered a particularly sound investment, in spite of the fact that the interest (which is payable quarterly at Lima or in New York) is subject to a Peruvian income-tax at 4 per cent. The bonds, which were offered at 97, yield at that price, after deducting income-tax and also Peruvian income-tax at 4 per cent., about $7\frac{1}{2}$ per cent. per annum. The total redemption of the loan must be effected in a period not exceeding fifty years from 1903 and 1904. The security seems ample, inasmuch as the revenues of the city of Lima, which has a population of 150,000, is estimated to bring in easily £100,000 per annum.

A stock company, with a capital of £300,000, and known as the National Tax Collecting Company, was established at the most critical moment of the Republic's financial affairs—namely, 1895—and when national bankruptcy was in the balance. The company, which is the Sociedad Recaudadora de Impuestos remodelled, has proved a most useful and beneficial means for both organizing and collecting the considerable sums accruing to the public exchequer, and at the same time regulating the general finances of the country. Year by year the functions of the institution have extended as its value has been better realized, and most of the important corporations in Peru have had commercial relations with it.



LIMA : THE SAVINGS-BANK BUILDING.

THE
MUSEUM
OF
THE
CITY OF
NEW YORK
AND
THE
MUSEUM OF
THE
METROPOLITAN MUSEUM OF ART

By the terms of the contract which was made with the Government, the National Tax Collecting Company has to receive all such revenues as taxes upon spirits and tobacco, stamps and registration fees, legacy duties, income - tax, taxes upon matches, mining licences, and, in fact, practically all the different legal payments due to the Government.

This corporation has been authorized to expend a sum of £84,000, out of revenue which is collected annually, upon the administration of the different branches which produce the revenue, retaining for itself upon the net production, originally, a commission of 3 per cent., which, however, diminished annually by $\frac{1}{2}$ per cent. until the year 1900, when it fell to 1 per cent. This has been the rate of commission in force until the end of the current year (1911), when the original contract comes to an end, although the Government had reserved to itself the right to cancel the agreement at any time after granting it, by giving six months' notice in writing. So unusual a source for handling the revenues of a Government in a country where representative administration prevails, I should say, could exist only in Peru.

The skilful manner in which the management has been conducted is best seen from the figures for the nine years from 1901 to 1909; which will be found set forth below.

From eighteen sources of revenue—1901, £413,871; 1902, £433,310; 1903, £492,086; 1904, £687,960; 1905, £815,858; 1906, £895,479; 1907, £896,852; 1908, £886,848; 1909 (estimated), £866,530.

The responsible officers of the National Tax Collecting Company are all men of the highest integrity and of sound financial reputation, neither party politics nor personal influence having anything to do with their appointment or with their control.

Apart from the revenues handed over to the Government by the National Tax Collecting Company, there are the Customs dues and some minor taxes, which are paid direct to the National Treasury. How the Republic's revenues have grown since 1899 is seen by the following figures :

Revenues (all accounted for) in 1899—£1,370,137 ; 1900, £1,312,571 ; 1901, £1,535,136 ; 1902, £1,483,305 ; 1903, £1,614,297 ; 1904, £1,990,568 ; 1905, £2,178,320 ; 1906, £2,555,463 ; 1907, £2,830,324 ; 1908, £2,861,299 ; 1909, £2,518,062 ; 1910, 2,795,775.

Naturally the expenditures of the Government had increased proportionately, and for one of the last years mentioned (1908) the outlay amounted to : Congress, £101,732 ; Interior, £449,127 ; Foreign Affairs, £52,793 ; Justice and Instruction, £416,096 ; Finance, £406,609 ; War and Marine, £494,865 ; Fomento, £204,919 ; Extraordinary Expenditure, £696,914, with, say, a total of £2,823,055.

The total revenue derived from all sources in 1910 amounted to £2,795,775, the principal items being : Customs, £1,384,158 ; National Tax Collecting Company, £1,050,745 ; Peruvian Salt Company, £99,032.

The total expenditure figures for the same period, which were estimated at £2,784,513, actually amounted to £2,653,335. Foreign trade amounted to £11,039,562, exports being £6,408,282, and imports £4,631,280.

The annual revenue of the Republic is approximately £2,800,000, and if, as some financial critics have stated, it seems unlikely that for some time to come this sum will be very much increased, it is certain that nothing less is likely to be realized.

From the year 1884 to 1909 the public finances of Peru have had an average annual development of £100,368, while its imports and commerce during the same period shows an average annual increase of

£255,073, and, as regards exports, an increase of £268,671. There has also been a substantial augmentation of deposits in banking and other economic institutions. Based on these facts, Peru of to-day possesses an economic capacity five times greater than Peru of 1884, and a financial potentiality sufficient to yield to the public treasury not only £3,000,000 per annum, but £4,000,000 if the tributary system be reformed without augmenting the number of imposts.

The contemplated expenditure for the present year (1911) is as follows :*

Department of the Interior	...	...	£287,778
Foreign Affairs	...	...	50,000
Justice and Instruction	...	...	216,479
Finance and Commerce	...	...	409,369
War and Marine	...	...	497,921
Fomento (Promotion)	...	...	218,456
Extraordinary expenditure	...	...	1,680,008
Or a total of	...	...	£2,360,311

It may be pointed out that the "Extraordinary Expenses" cannot be estimated with any accuracy, since much depends upon the progress of legislation, which, again, depends upon Congress. The annual cost of legislation has averaged £106,000.

In 1909 the Customs receipts were £962,000, while £482,000 was collected for the first half of 1910, or at the rate of £964,000. It must be remembered that the Customs revenues are always greater in the second half of the year than during the first, so that the Government authorities were looking for a revenue of a round £1,000,000 from these sources for the whole of 1910. Then the taxes collected by the Compañía Nacional de Recaudación (National Tax Collection Company), which amounted to £695,000 in the first

* The Legislature dispersed before definitely approving the Budget for 1911. These figures are only conjectural, being based upon those for 1910.

eleven months of 1909, produced in the same period for 1910, £779,000. The salt revenues up to November 30, 1910, came to £211,000 inclusive, as compared with £194,000 in the same period for 1909.

The receipts of the principal Custom Houses of the Republic for the first three months in 1911 show, in every instance, an increase over the corresponding period of 1910, as below (in pounds and thousandths) :

Port.	1911.	1910.
	£	£
Paita	15,418.566	10,363.571
Eten	9,350.420	6,426.443
Pacasmayo	5,452.338	4,255.922
Salaverry	9,046.713	8,156.387
Callao	186,261.012	154,410.323
Pisco	5,970.315	5,188.273
Mollendo	45,899.695	35,551.368
Ilo	2,522.358	1,948.777
	279,921.417	226,501.064

The total increase in the Pacific ports enumerated above is, therefore, £53,420.353. The statement from the Atlantic port of Iquitos, on the Amazon River, has been received only up to January, 1911, inclusive, the income for the month being £15,519.509 as against £10,431.394 in 1910, an improvement for the month of £5,088.468.

It is somewhat surprising to find a number of American and some British journals, in taking the Peruvian official figures, entirely misunderstand the meaning of the fractions which are usually expressed. Thus a revenue of £1,017,488.657 is given in these publications as “£1,017,488,657,” which, for a young country like Peru, with a population of but 4,000,000, would be simply absurd, the amount of its Customs due being magnified thus 1,000 times. The last three figures in the sum, of course, represent the fractions of

the Peruvian £, which is made up of 1,000 *centavos*. The total revenues of such countries as Argentina, £22,456,000 ; Brazil, £28,917,000 ; Chile, £13,000,000, would appear insignificant in comparison, while even France can only claim £167,423,000 and Germany £149,689,000.

Continued improvement is shown by the maritime Customs House receipts at the various ports of the Republic. Elsewhere I have directed attention to the advance made by the Port of Callao in this respect, the total for 1910 coming to £797,867, as much as £84,343 having been collected in the course of one month, namely, last June (1911).

FOREIGN COMMERCE OF PERU, 1899-1908.

Year.	Import.	Export.	Total.	Remarks.
	£	£	£	
1899	2,123,018	3,361,531	5,484,549	
1900	2,317,150	4,497,999	6,815,150	
1901	2,717,107	4,318,776	7,035,884	
1902	3,428,283	3,703,971	7,132,255	
1903	3,783,380	3,857,753	7,641,134	
1904	4,357,338	4,066,639	8,423,978	
1905	4,357,696	5,757,350	10,115,047	
1906	5,010,496	5,695,179	10,706,375	
1907	5,519,751	5,744,544	11,264,296	
1908	5,311,973	5,478,941	10,790,914	
1909	4,298,670	6,492,627	10,791,297	
1910	4,631,280	6,408,282	11,039,562	

CHAPTER VII

Insurance—Native offices—Foreign agencies—Leading offices—Comparative surpluses—Dividends paid—Rímac figures for 1910—Banking—Principal banks—Bank of Peru and London—Savings bank (Caja de Ahorras)—Coinage—History—Monetary laws—The National Mint.

THE business of insurance has been developed considerably of late years in Peru—in fact, since the passage of the law of 1901, which, at one time, was supposed to “kill it.” In the year 1895 laws had been passed, for the first time in the Republic, in connection with the carrying-on of insurance business. Up to that time, it had been almost entirely conducted by foreigners, and no native insurance companies any longer existed. The old Peruvian companies, known as La Lima and La Sud-Americána, had liquidated their affairs at the time of the war between Chile and Peru. At this time, also, there were fifteen agencies of different foreign insurance companies carrying-on business in the Capital, and the majority of which charged a premium of about 100 per cent. more than what is paid by policy-holders at the present time.

The new Decree passed by the Government was liberal, and *inter alia* required that a deposit of £3,000 should be made in order to enter upon the business, that sum being exacted as a guarantee, through the State, that foreign companies should carry out their obligations to the public. In spite of the fact that the agencies of these companies were making considerable

profits, they decided to liquidate, which would lead one to the conclusion that they regretted having to find a very reasonable amount of guarantee, and to trade without any kind of supervision.

The withdrawal of the foreign companies, however, may be partly accounted for by the subsequent establishment of a strong native company, the Internacional. This office commenced its operations by reducing by 50 per cent. the rates of premium then in force, a policy which at once secured for it considerable support from the public. The Internacional was followed in 1896 by La Italia and the Rímac offices; in 1902 by the Urbana; in 1903 by the Perú; and in 1904 by the Popular and the Nacional, the capitals and surpluses of these companies being as follows:

Name of Company.	Established.	Capital.	Surplus.
		£	£
Internacional	1895	200,000	60,000
Italia	1896	200,000	41,101
Rímac	1896	250,000	62,191
Urbana	1902	100,000	6,630
Perú	1903	250,000	10,500
Popular	1904	200,000	21,070
Nacional	1904	250,000	15,095

The minimum paid-up capital with which any home or foreign company may begin business is fixed at £20,000, half of that amount to be invested in landed property located in Peru, and the other half in bonds of the Public Debt, of the Municipalities and District Councils, or of private institutions which are located in Peru, and retained to serve as a guarantee to policyholders. This stipulation seems to me so reasonable, and in fact so necessary, that it is difficult to understand the foreign companies having taken umbrage,

and preferring to regard the law as an imposition. Probably they imagined that, by withdrawing, the law would be annulled; or fondly believed that no Peruvian could conduct insurance policies with success. But they made a very great error, for the native companies not only prospered, but increased in number, and the opportunities which the foreign companies then stupidly threw away have never recurred.

The only three foreign companies still doing business in Peru to-day are the Sun Life of Canada, La Previsora of Buenos Ayres, and La Sud-América of Brazil. Although nominally "foreign," they have become practically native companies, for they have had to comply with all the rules and regulations of the new law of 1901. The Sun Life Insurance Company of Canada was established in 1865, and is organized under strong British laws, its capital exceeding £6,500,000 sterling, while its income is over £1,550,000 per annum from all sources, and it has a surplus of £1,000,000. The total business in force up to the end of last year exceeded £28,000,000.

La Previsora was established in 1885, with an original capital of 500,000 *pésos* (£50,000). Its assets to-day are estimated at upwards of £1,400,000, the surplus being £1,138,000, while its insurances in force up to the end of last year amounted to over £4,000,000. La Previsora is said to be the only company in Peru which insures the lives of women as well as of men.

La Sud-América, which was founded as recently as 1895 in Brazil, and which entered Peru in 1899, showed a reserve up to the end of last year of over £1,500,000. The insurances in force up to that period amounted to £8,200,000, of which £550,000 were held in Peru. The form of policy of which the company has made a speciality is based upon the amortization principle, 2 per cent. of the total policies in this class

being drawn by lot each year, the holders of the winning numbers having nothing more to pay from that time, the company assuming for its own account the remaining premiums.

La Compañía Internacional de Seguros del Perú was established in 1895, and has an authorized capital of £500,000, the amount paid up being £200,000, and the reserve fund £60,000. The company has paid dividends amounting to as much as 52 per cent.

La Nacional, established in 1904, has an authorized capital of £200,000. Like the Internacional, it has agencies in all the principal towns throughout the Republic; but while the first-mentioned undertakes the insurances of house, furniture, and merchandise (including cargoes received by steamers and sailing-vessels for all parts of the world), the Nacional insures against fires and maritime risks only.

La Popular, established in the same year as the above (1904), has a paid-up capital of £200,000, and a reserve of £200,000. It insures buildings and furniture against fire in Lima, Chorillos, Barranco, Miraflores, and Magdeléna at very moderate premiums—in fact, the lowest on the market, and apparently too low to bring much profit to the coffers of the company. It has established several agencies in different parts of Peru.

La Italia, as will be seen, ranks as one of the oldest of the native insurance companies, its paid-up capital being £200,000, and the reserve fund £41,101. It has paid dividends amounting to 30 per cent.

La Urbana is a fire and maritime insurance company, established in 1902, with an authorized capital of £200,000, a paid-up capital of £100,000, and a reserve fund exceeding £12,000. The office undertakes insurances of buildings and furniture, and carries on general insurance business.

La Compañía de Seguros Rímac, established in 1896, insures against fire and maritime accidents; it has a paid-up capital of £250,000.

The Perú is a small but progressive office, which declared its first dividend in 1906, amounting to 5 per cent. The following table will show how the different companies prospered during the five years of their existence from the passing of the new law of 1901 :

	1902.	1903.	1904.	1905.	1906.	Total Dividends.
	Per Cent.	Per Ce.	Per Cent.	Per Cent.	Per Cent.	Per Cent.
Internacional	32	36	24	35	52	179
Rímac ...	16	14	14	25	28	97
Italia ...	18	10	10	24	30	92
La Urbana ...	—	10	—	12	15	37
Perú ...	—	—	—	—	5	5
La Popular ...	—	—	—	—	—	—
La Nacional	—	—	—	—	10	10
	66	70	48	96	140	420

From this statement it would seem that "La Popular" was "popular" in name only, since it had paid no dividend since its introduction to the business world in 1904. Recent statistics are difficult to obtain, and perhaps the office may have become more worthy since 1906 of the title which it assumes.

That the insurance business generally in Peru continues to prosper is clear from the figures of other offices for 1910, which are, in part, obtainable. It is apparent, for instance, that the Rímac, which, as will be seen above, dates from 1902, and has distributed total dividends for the first five years of its life amounting to 97 per cent., during the last year mentioned (1910) succeeded in increasing its reserve fund from £62,191 to £67,205, and paid a dividend of 19 per cent., *plus* a previous dividend of 8 per cent., making 27 per cent. for the year. The Internacional



LIMA : GENERAL POST OFFICE.

THE
UNIVERSITY OF CHICAGO

also considerably increased its reserve fund, and paid 10 per cent. in dividend.

It took a great many years to place banking upon a sound and permanent basis in Peru, and for a country of its size and remarkable natural wealth the lack of efficient facilities must have acted as a great handicap. Previous to the commencement of the movement in favour of the establishment of the gold standard, and at the time when political trouble was still prevalent, there existed but one banking institution—the Bank of Callao, which was a branch of the London and Mexico Bank of South America. There was one native institution, known as the Savings Bank, which was a dependency of the Lima Public Benevolent Society. In 1889 the Bank of Italy was founded, and in 1897 the Callao branch of the London and Mexico Bank of South America (a most cumbersome name) was merged into the Bank of Callao which had come into existence, and from these two was born the present Bank of Peru and London. Subsequently, the German Transatlantic Bank established branches at both Callao and Arequipa, and each of the three previously mentioned houses opened a separate mortgage section. To-day, by means of these establishments, the banking business has gradually extended throughout the Republic, and the transactions carried on from day to day have assumed considerable dimensions. In general, the profits earned have been deemed satisfactory, although, by the laws of the Republic which govern their operations, these institutions are deprived—and very wisely, in the opinion of sound financiers—of the resource of issuing notes payable to bearer in coin and at sight. Furthermore, the banks must contribute 5 per cent. of their annual nett profits to the coffers of the nation. The relations which have in times past existed between the banks and the

Government are referred to with some particularity under Chapter VI.

The principal banks of the Republic at Lima showed the balances of their commercial accounts and deposits to be as follows at the end of December 31, 1910 :

London and Peru Bank	£P2,546,172.708
Italian Bank	628,717.889
International Bank	172,519.923
Popular Bank	334,945.166
German Transatlantic Bank	1,281,458.482
Savings Bank (Caja de Ahorros)	457,995.669
Bank of Deposits and Consignments	208,815.491
Total	£P5,630,625.328

These figures show an increase of £P1,285,980.755 over those of the previous twelve months (1909).

The published profits of the different institutions have been declared as follows :

	1909.	1910.
	£P.	£P.
London and Peru Bank	74,781	75,682
Italian Bank	19,289	20,500
International Bank	7,555	9,040
Popular Bank	17,976	18,841
Savings Bank	5,417	4,335
Bank of Deposits and Consignments	14,701	14,399

The Bank of Peru and London was founded in Lima in June of 1897, its original capital being £200,000. It is, as stated, a fusion between the Bank of Callao and the Bank of London, Mexico and South America ; the London office is in Gracechurch Street, E.C. A few years after its foundation the capital of the bank was increased to £500,000, and the reserve fund amounted to £275,000. The shares of the bank have been quoted upon the London Stock Exchange since 1907 ; and, commencing with that year, the institution had established another bank in La Paz (Bolivia),

called the Bank of Bolivia-London, the capital of which is £1,000,000. As will be observed from the illustration which is given elsewhere, the Bank of Peru occupies an extremely handsome and commodious building—in fact, quite the most palatial commercial premises. Its daily business amounts to something like £100,000. The officials, from the President downwards, are both enterprising and courteous, especially towards foreigners bearing letters of introduction.

Peru has so recently emerged from a state of monetary restriction that it would be hardly reasonable to suppose that the people—by which I mean the working classes and labourers—even if they naturally were of a saving disposition, would be able to put by anything of their earnings. Thus Savings Banks are institutions which have but little vogue in the Republic. Nevertheless, there is one such bank, Caja de Ahorros, and it has met with a fair amount of success, if one may judge from the fact that it has established one or two branches. We have in France an example of the rapidity with which the peasant class can not only recover from wars and revolutions, but rise superior to political and economic crises. The same has undoubtedly proved to be the case with Peru.

Few countries in the Old World or the New have undergone more severe financial stress than Peru ; but whereas misfortunes generally attend new countries in the days of their juvenescence—*teneris, heu, lubrica moribus atas!*—evil times came to Peru when it was merging upon the adult stage ; and, therefore, perhaps the better able to withstand the shock. However, out of evil cometh good ; and the lessons which were learned in those distressful days have been taken seriously to heart, with the result that Peru is to-day financially stronger than ever it had been previously.

When the independence of the Republic was proclaimed in 1821, gold and silver coins were circulated with full value as legal tenders, and in the following year (1822) a new currency was coined both of gold and silver, with the same fineness and weight as the Spanish money. This coinage continued to circulate as legal tender until 1836, when, by reason of the Peru-Bolivian Confederation, Bolivian money, although of inferior fineness, was admitted into Peru and accepted as of the same value as the native currency. This mistake was, as we have seen, one of the prime causes of the subsequent heavy losses to trade and to the public wealth in general.

In 1863 a further new law was passed, reforming the monetary system, which included the establishment of the decimal coinage and the double standard of gold and silver. The silver *sol* was recognized as the monetary unit. The coinage of the new system was as follows :

Name of the Coins.	Weight in Grammes.	Diameter in Millimetres.	Value in Cents.
Silver coins :			
<i>Sol</i>	25	37	100
Half <i>sol</i>	12.5	30	50
One-fifth <i>sol</i>	5	23	20
One-tenth <i>sol</i> (<i>dinero</i>) ...	2.5	18	10
One-twentieth <i>sol</i> (half <i>dinero</i>)	1.25	15	5
Gold coins :			
Gold <i>sol</i>	32,25804	35	Value in <i>Sols.</i> 20
Half gold <i>sol</i>	16,12902	28	10
Quarter of <i>sol</i>	8,9451	23	5
Tenth of <i>sol</i>	3,2258	19	2
Twentieth of <i>sol</i>	1,6129	17	1

In 1872 yet another law was passed altering the gold coins, limiting the coinage to gold *sols* and fifths of gold *sols* ; but as the law fixed no legal value to the

gold coin, it became *de facto* demonetized, so that silver remained the only monetary standard, thus abolishing bimetallism and introducing monometallism of silver. This condition lasted until 1897, when the gold standard was implanted; and since then there has been but one alteration in the monetary system of the country, which stands to-day as follows :

The Peruvian pound—and which is equal in all respects to the English pound—is the monetary unit. It consists of a gold coin, the diameter of which is 22 millimetres, with the weight of 7 grammes 988 milligrammes, and a fineness of $0.916\frac{2}{3}$ millesimals; the half-pound (equal in value and appearance to the half-sovereign) has the same fineness. By a law issued in 1906, the minting has been authorized of gold coins equivalent to the $\frac{1}{3}$ part of a pound.

The old silver coins of Peru are used in the character of an auxiliary currency as sub-multiples of the Peruvian pound—viz., the silver *sol*, with a weight of 25 grammes, and equal to 100 centesimals of the *sol*; the fifth of a *sol*, with a weight of 5 grammes, equal to 20 centesimals; the tenth of a *sol*, with a weight of $2\frac{1}{2}$ grammes, equal to 10 centesimals; and the twentieth of a *sol*, with a weight of $1\frac{1}{4}$ grammes, equal to 5 centesimals. The fineness of all these silver coins is $\frac{9}{10}$.

Copper money, which is likewise only an auxiliary currency, consists of coins of $\frac{1}{100}$ and $\frac{2}{100}$ parts of a *sol*, and according to law is only legal tender up to the sum of 20 cents.

The first piece of money coined in Peru was in 1557. It was an ugly and clumsy effort, irregular in shape, and marked upon each side with a cross, made apparently by sharp blows from a hammer. In 1565 the first mint was established on the selfsame spot which is occupied by the present edifice.

In 1572 the coining of money was transferred to Potosí, the greatest silver-producing mines in the world, at that time ; but when the still more wealthy Cerro de Pasco mines were found, Potosí was deemed unworthy to retain the mint, so that it was again transferred to Lima. This structure was destroyed by the earthquake of 1746, and rebuilt in 1753, and to-day it forms one of the handsomest buildings in the Capital.

The number of silver coins stamped in the mint under the Viceroy, exceeded 400,000,000, and they were always accepted throughout Spanish-America on account of their exactness of both weight and fineness. The gold and silver coins still turned out are beautiful specimens of the engraver's art.

During last year (1910) the National Mint of the Republic coined the amount of £52,859, in units and fifths as follows: £47,076 (Libras Peruanas) and 28,915 fifth-pounds (£5,783).

CHAPTER VIII

Education—Lima University—Number of schools—Native schools—Commerce and Agriculture—Arequipa University—English schools—Peons as pupils—Literary societies—Lima Geographical Society—Learned associations—Theatres—New Municipal Theatre—Peruvian press—Notable journals—English newspapers in South America—“Peru To-Day.”

THE Department of Lima, from many points of view, is by far the most important, educationally speaking, in the country. It has an area of nearly 35,000 square kilometres, and a population of some 300,000 inhabitants. Lima, the national capital, is also the capital of the Department, and is the seat of the University of San Marcos, the Engineering, Agricultural, Industrial, and Normal Schools, and a number of colleges of secondary instruction. The Republic has four universities in all—Lima, Cuzco, Arequipa, and Trujillo.

The Department contains some 250 primary schools, which are supported and administered by the Government. These schools are under the supervision of fifty-eight district inspectors, six being provincial and one departmental. The primary schools of the Constitutional Province of Callao are also subject to the control of the departmental inspector for Lima. The appointment of the last-mentioned for Lima and Callao is one of the most important educational posts in the country. This is true not only with respect to the responsibilities which it involves, but also with respect to the opportunities which it offers.

The Government has of late months transferred to this position Mr. Joseph B. Lockey, from the Department of La Libertad. Mr. Lockey began teaching when he was sixteen years of age, and has been engaged in educational work continuously since. He has occupied positions of some importance both in primary and in secondary school work, and he has had valuable experience in educational administration generally. He received the degree of B.A. from the Peabody College, Nashville, Tennessee, U.S.A., and the degree of M.A. from Columbia University. He holds also professional diplomas in education from the Florida State Normal College, and from the Teachers' College, Columbia University.

Peru claims, and with good reason, to possess the oldest educational establishment in Latin-America. San Marcos University was founded in 1551, that is to say, during the reign of Charles V. of Spain, who was also, it will be remembered, the Emperor of Germany, and the central figure in Europe during his eventful life of nearly sixty years. To San Marcos were conceded the same distinctive honours as those enjoyed by the great Spanish University of Salamanca, held in those days to be the most celebrated educational establishment in Europe. The royal grant was made to the priors of the Dominican Order, the original lecture-halls having been installed in the Monastery of Santo Domingo; but some twenty years later, in the time of Philip II., an order was issued for the secularization of the University and its complete separation from the convent.

Law is the most important branch of study pursued at this University, and it leads in the promotion of liberal education. It is directed by a Council, consisting of a rector, a vice-rector, a secretary, and a dean, and a delegate from each Faculty. The present rector is

Dr. Luis F. Villarán, who succeeded in 1905, replacing Dr. Francisco García Calderon.

Arequipa is the seat of a University, a National College of Secondary Instruction, a Normal School for women, and of a number of good private schools, as well as of the Harvard University-Observatory. In the whole Province of Arequipa there are about seventy-four public schools, which may be considered a very fair proportion, considering the entire population of the Department amounts to no more than 115,000. The city of Arequipa has 70,000 inhabitants.

The National Government has latterly appointed a young American as inspector of all these educational establishments—Mr. Joseph P. McKnight, who has also under his supervision the primary schools of the Province of Islay, of which the port of Mellendo is the capital. Mr. McKnight claims to have had over twenty years' experience in educational work, and he holds a master's diploma from the Teachers' College of New York, U.S.A.

It is noteworthy that in the very stronghold of the Incas—the famous and beautiful Cuzco—is established one of the Republic's most important seats of learning, the Cuzco University. Its ancient cloisters still resound with the merry laughter of "young Peru," as it hurries and clatters over the venerable tiles of its paved courtyards, while the surrounding houses have shielded such notables of learning as Garcilaso de la Vega, the great historian; Espinoza, Perez, Heros, Medrano, Antonio Lorena, and, more recently, David Matto and Narciso Arestegui. A month's stay in Cuzco to study its ruins and to visit its monuments affords one of the most liberal educations in Peruvian history that one can hope to attain.

The Technical School of Commerce was the first establishment of its kind in Peru, and dates back

about twelve years. Many of the most prominent firms and banks in Lima make a point of drawing their clerks and assistants from this school, the usual course of study being three years, after which the pupils receive certificates, which often prove very useful in their search for employment. The principal is Dr. Perla, and he seems to have introduced a highly successful system of training the youthful mind in the direction of commercial utility.

The National School of Agriculture is the creation of a former Minister of Fomento—Señor Eugenio Larrabure y Unanue, who established it in June of 1902. He is now the Vice-President of the Republic, but continues to take the keenest interest in the conduct of this excellent institution. The pupils are offered a sound theoretical and practical training in all of the various branches of agriculture and veterinary subjects. Fairly "stiff" examinations are held, and certificates and diplomas are granted.

The School is situated in the centre of a farm covering 600 acres, near the capital of Lima, and the house is a fine two-storey building, capable of accommodating 100 pupils and their attendants. There are many well-designed and efficiently equipped laboratories, a library containing many English volumes, as well as several private cabinets and recreation rooms. The Director is Mr. George Vandergehm, who has been in office since the foundation. He is supported by a very capable teaching staff, all classes of study—agronomical, engineering, botany, zoology, chemistry, entomology, political economy, and agriculture—having capable and expert masters to conduct them. The English master is Mr. J. C. Frederic Blume. Much useful work is being done by this academy, and some very brilliant pupils have been turned out by it.

Among some private educational establishments is the Anglo-American School in Lima, which is maintained by the Rev. W. Duncan and Mrs. Standfast, who also receive some of the pupils as boarders in their own house.²

There is an English Commercial School established in Callao, which was founded four years ago by the "Centro de la Juventud Católica," of Lima. At one time the number of pupils reached 320, but indifferent management sufficed to reduce the average considerably. Latterly, however, a new direction seems to have improved the conditions, and under the supervision of the Marists, a brotherhood of Christian educators, the pupils are increasing in number and also in efficiency. Most of the teachers have been connected at some time or other with education in England, the United States, France, Italy, and Spain. About one-half of the text-books used are in English, and much attention is devoted to teaching that language thoroughly.

Towards the middle of last year (June, 1910), the Government created a new educational commission, composed of the ablest men in the country. At that time no fewer than five of the more important among the United States were at work upon the codification and preparation of new educational laws, and upon the same principle in practice was based the reformation of the Peruvian educational system. The existing Organic School Law of Peru was enacted in 1901. A second important decree was passed in 1905, in which some strikingly drastic reforms were comprised. These provisions have, however, been since found to be too drastic in some respects and too deficient in others; hence the necessity for a complete revision of the system in force. All of the members of the Commission are Peruvians, with the exception of the

Secretary, Dr. H. E. Bard, who is an American, having been a student of Administrative Sciences under Professor Goodman, in Columbia University.

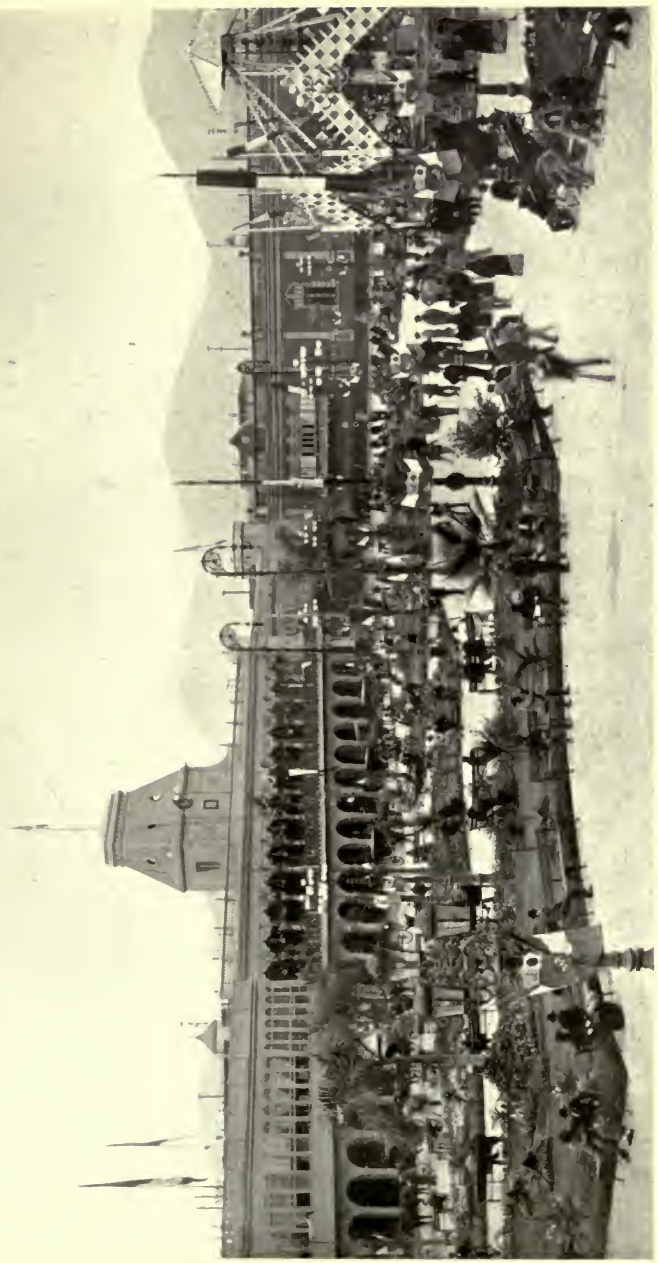
By an Executive decree of December 17, 1909, it is provided that the English language shall be taught in all the national schools of Peru.

That the average native is by no means as dull or as stupid as some people imagine, nor as dense intellectually as several writers upon Peru have audaciously asserted, is proved by the statement made by Dr. Harry E. Bard, the Director-General of Primary Education, who has said: "I will take a Peruvian child of six years of age, teach it for three years at the side of one from the United States—who has naturally enjoyed all the advantages over the former by reason of speaking the language which it is learning—and by the end of the time mentioned, I will have both upon the same footing of preparation."

Among so cultured a class as the better-bred Peruvians, it seems but natural to find a strong literary and artistic element, and it is doubtful whether any Latin-American city can offer more in this direction than Lima. The race is a literary one; in fact, so close has been the attention paid to study and culture, that the Peruvians have by some historians been described as effeminate. It is a question whether this characteristic has been derived from the high-born and well-educated Spanish ancestry or the Quechuas' native blood; perhaps it may be attributed in part to both.

While the Spaniards, as we know, represented all that was brave but cruel, all that was artistic and elegant but callous of human suffering, the Quechuas were a thoughtful, melancholy race, much given to the ornamentation of their monuments and the elaboration of their artistic occupations. Their descendants to-day

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LIMA : LA PLAZA, ONE OF THE MOST BEAUTIFUL PUBLIC SQUARES IN SOUTH AMERICA.

naturally find more ample opportunities for indulging this artistic temperament than under the tyrannical government and persecution of their Spanish conquerors.

The Peruvians, if they have not produced many notable contributions to literature, are avid readers of other Spanish, French, and often English publications. That they nevertheless possess much ability as writers is shown by the often striking and powerful articles which appear in the daily and weekly press, while Peruvian orators, even amongst the youngest of the men—in fact, some who are mere boys—are frequently to be met with. The Spanish language lends itself readily to descriptions and expressions very much more ornate and extreme than can be employed in the Anglo-Saxon tongue; and the extravagance of the diction used, although it may strike the Northerner as somewhat absurd at first, is, nevertheless, singularly agreeable when the real beauties of the Latin tongue become better appreciated by a closer acquaintance with those who speak it.

Most of the daily papers published in Peru are distinguished for the moderation of their tone, the brilliancy of their editorials, and the fulness of their cable and telegraphic services. Upon occasions perhaps of extreme political excitement some of the more “yellow” among the papers may break away from the usual restraint, and emulate the tactics of the—for instance—New York and Radical London press; but they never could, under any conceivable circumstances, equal either in personal vituperation and inventive audacity.

There is an immense quantity of scientific literature issued periodically in Lima, which may be considered the literary centre of Peru, but much of this never travels beyond the confines of the Republic.

Printing was first introduced into Peru in 1567, at the time of the coming of the Jesuits—that is to say, some thirty-one years later than the first press introduced into Mexico—namely, in 1536. The famous University of San Marco, to which reference is also made as a seat of learning, had already been established in 1551, ten years after the death of Francisco Pizarro. The spread of education was very slow, being, indeed, suppressed, as was usual among the Spanish priests of those days. In spite of this fact, libraries and scientific institutions were brought into being, if but very gradually, and to-day Lima boasts of many excellent institutions of this character. The National Public Library was founded in 1822, and still maintains its position as one of the most celebrated in South America. Unfortunately, the contents of this institution were greatly damaged by the vandalic conduct of the invading Chilean armies in the years 1882-1884. These Goths not only ruthlessly destroyed many valuable and priceless works, but used the building as barracks!

A loyal Peruvian named Ricardo Palma endeavoured to restore the library to something like its former position, but his efforts were only partially successful, since nothing could be done to replace the priceless manuscripts and unique books which had been torn up and burned as fuel for the Chilians' fires. This was really a matter of history repeating itself, for the Chilians committed the same unpardonable outrage upon their Spanish cousins, and upon posterity, as the fanatic Archbishop Zumarraga had, some three centuries before, perpetrated upon the archives left by the interesting Aztec race in Mexico.

The capital possesses a Geographical Society, which has done some highly important work in the explora-

tion and description of the enormous territories of the Republic, and the President of the Society showed me a map that the Society then had in preparation, and which had been some years already in hand. It will doubtless prove to be the most complete and most authentic map that has ever been published of Peru and the neighbouring Republics.

There is also an Historical Institute, which investigates and issues reports upon the early Inca and Aymara civilizations, of which so much abundant material exists. Additionally, there are societies, possessing large and representative memberships, relative to medical, legal, engineering, music, mining, literature, agriculture, and other subjects. Many of these learned societies have their own houses or rooms, while others meet at the rooms of one another, or at public halls. The Government does much to encourage these associations, and, whenever any financial assistance is sought, it is but seldom withheld. In connection with the more thorough exploration of the country, the Government has been particularly interested, and the several individuals who have applied to it for guidance and aid have been abundantly satisfied with the response made.

The Lima Athenæum has existed since 1877, when it was known as the "Literary Club," changing its title to the broader one of "Athenæum" ten years later. It occupies handsome and comfortable premises, and the Government contributes a subsidy to its upkeep.

The Technical Board of Valuations is composed of a number of engineers, architects, and land-surveyors, whose names are incorporated in an official register of real estate. The Society has stringent rules as to membership, and it has been the means of several very important estimates being made for public works

and valuations. The public may obtain, at reasonable fees, expert information upon all such matters.

The Technical and Industrial Institute of Peru was established by the Government in 1896. It is composed of the principal members selected from all the other Societies of a technical or industrial character, and it really constitutes a "Union" of these bodies. The objects of the association are to protect and encourage the development of the national wealth, to act for the Government as a consultative board, and to aid the public in regard to information and advice upon most technical and industrial, but not commercial, undertakings. The Government also makes a contribution annually to the funds of this Society.

Among other associations are The Permanent Exposition of Machinery and Manufactures, a kind of Royal Agricultural Society without the "Agriculture"; The Lima Chamber of Commerce, The Mercantile Exchange, and several smaller concerns of a similar character.

A branch of the Young Men's Christian Association has lately been established in Peru, mainly upon the suggestion of the Peruvian Consul-General (Mr. Higginson) at New York. The idea was at once readily approved by President Leguía, the Rector of the University of Lima, and the Minister of Fomento, as well as by a large number of other prominent men. A capable General Secretary has been appointed to develop the work, with Lima as his headquarters.

In common with all members of the Latin-American race, the Peruvians dearly love the theatre and the opera. With their strong partiality for such forms of amusements, it is strange to find the Capital possessing for a great many years but one single theatre. This had been erected in the reign of one of the last

Viceroy, and was naturally devoid of all conveniences, and very deficient in accommodation. In the end it found its grave in a fierce conflagration, and few could have regretted its disappearance. Then the Municipality put up a temporary wooden structure capable of seating about 1,600 spectators. To-day there are several notable places of amusement in Lima, and others in different cities of the Republic, while in practically all the towns one can spend hours at the cinematograph shows which abound, and which have secured the same remarkable hold over the public of Peru as those of the Argentine Republic, Uruguay, and Brazil.

Among the principal playhouses are the Politeama, which is now the largest in Peru, holding over 2,000 people; El Olimpo, which, of smaller dimensions, seats about 1,400; a Chinese theatre, where the children of the Celestial Empire give their weird and frivolous performances; and a bull-ring holding easily 8,000 spectators. A cock-fighting arena—or, as it is called, a *coliseum*—is very well patronized by the lower classes, who always seem to find money enough to lose in betting upon their favourite birds. The Jockey Club have built a handsome Hippodrome upon a piece of ground belonging to the School of Agriculture, and here are held some interesting meetings, reminiscent of Hurlingham and Ranelagh.

The new Municipal Theatre, which accommodates 2,000 spectators, should be a great attraction, since most of the travelling companies, dramatic and operatic, which now make South America a part of their regular touring itinerary, should visit Lima during some part of the year. No company could wish for more discriminating or appreciative audiences.

No press of South America has been accorded greater or more deserved praise than that of Peru. Even critics who totally disagree with their political

opinions—which is but natural in a country where free expressions of thought are not only permitted, but encouraged—agree, that for dignity of expression and purity of motive the Peruvian newspapers are almost unique in Latin-America.

I suppose that there must be something in the gentle Elia's lament that "newspapers always excite curiosity, and that no one ever lays one down without a feeling of disappointment"; but in regard to the majority of the Peruvian news-sheets one certainly gets full value for the small coin which has to be expended for their possession, if only in regard to the admirable cable service and the full and inland telegraphic news which they contain. The illustrated papers, weekly and monthly, will compare most favourably with the best of the English periodicals; and in most cases their literary contributions stand upon a decidedly higher level of merit.

The oldest of the daily papers is *El Comercio*, which was founded in the year 1839. It was this journal which strongly advocated the abolition of slavery in 1850-1855, and it required a great deal of moral pluck to preach such a mission in Peru—or, indeed, anywhere in South America—in those days. *La Prensa* is another very powerful paper, both morning and evening editions being issued. *El Bien Social* is a clerical organ, and very carefully edited. *El Liberal*, whose opinions are expressed by its name, and *Diario Judicial*, are both regarded as high-class publications. Of weekly papers there are a great variety, among the best being *Prisma* and *Actualidades*. The foreign colonies are partly represented by different weekly editions; but, as yet, no English weekly paper has succeeded in maintaining any but a precarious existence. Of monthly organs there is also an immense selection, practically every social institute having its

own particular exponent. Thus, we have *La Revista Pan-Americana*, *El Boletín y Registro Oficial de Fomento* (a Government publication of great value to those who would follow the commercial progress of the Republic as officially portrayed); *El Boletín de la Sociedad Geográfica de Lima*; *El Boletín del Instituto Histórica del Peru*; *del Sociedad Nacional de Minería*; *del Sociedad de Agricultura*; *del Sociedad de la Indústria*; *del Academia Nacional de Medecina*; *La Cronica Médica*; *El Monitro Médico*; *La Gazeta Científica*; *El Boletín Escolar*; *La Gaceta Comercial*; *Boletín de Minas*; *La Revista de Ciencias*; *Boletín del Cuerpo Técnico de Trasaciones*, and numerous others.

El Callao is a daily of much importance circulating in the Port of that name; while in the Provinces the following may be accepted as the leading organs of their respective communities:

Cuzco, *El Comercio* (daily) and *El Cuzco* (weekly); Húanuco, *La Paz* (weekly), *Mollendo* and *El Puerto* (dailies); Arequipa, *La Deber* (daily); Huacho, *El Eco* (weekly); Huaraz, *El Correo de Ancachs*, *La Federación*, and *La Justicia* (all weeklies); Piura, *La Nueva Era*, *La Revista del Norte*, *La Industria* and *El Comercio* (all weeklies); Iquitos, *Loreto Comercial* (daily).

I have often asked which was the first English newspaper to be established in Latin-America, but I have never been able to find out with certainty. I believe, however, that it would be correct to award the palm—if, indeed, it is a “palm,” and not a pillory, which should be awarded to some of the discreditable sheets which pass as “British newspapers” in Latin-America—to a paper called *The Cosmopolite*, started in Buenos Aires in 1825 by an American named Hallett. Then, the following year came *The British Packet*, a much better name and an infinitely better paper. *The Commercial Times* appeared in 1862. All

of these were Buenos Aires ventures. In Panama, the *Star* was issued in 1849. These sheets seem to have been the earliest English publications; at least, they are the only ones which I have been enabled to trace.

Peru has been fortunate in late years in having an eminently sound and literary newspaper—or rather magazine—one which is as skilfully edited as it is handsomely illustrated. *Peru To-Day* has now attained an influential circulation, reaching far beyond the confines of the Republic. The editor is a cultured and talented American, Mr. John Vavasour Noel, who has been trained in a thoroughly practical school—a school which “observes and thinks.” The assistant-editor is Mr. F. E. Ross, an equally capable and clever journalist. There can be no question that *Peru To-Day*, which is issued monthly in Lima, affords a reliable mirror of the commercial and industrial progress of this Republic from month to month; and a file of this neat and admirably printed publication—which misses nothing, and neglects nothing which can be regarded as coming within its particular scope—will be the best index that could be found for future historians of Peru.

CHAPTER IX

Lima, the Capital—Description of city—Climate—Earthquakes—House decoration and architecture—Public places—Avenues—Parks—Transportation—Charitable institutions—Hospitals and asylums—Suburbs—Miraflores—Chorillos—Bellavista—Destruction by Chilian troops—Bathing—Cruelties of war.

THERE are in South America three cities in particular where one can live, and live with every comfort and convenience. These are Buenos Aires, in Argentina; Santiago, in Chili; and Lima, in Peru. I think, were I to be compelled to make my choice, I would select the last-named, since it is, to my mind at least, the most restful and the best regulated, from a police and municipal point of view, of any city south of Panama. It is, moreover, a remarkably beautiful city, on account of the many old Moorish relics and well-preserved buildings of the Spanish times. The number of its official buildings and public parks to-day is exceptionally large, and they must have been almost unique in point of elegance in the olden days.

The configuration of the city of Lima, which dates from January, 1535, when it bore the name of "Ciudad de los Reges" (the City of Kings), is very irregular, and somewhat in the shape of a triangle; the base rests on the river, which divides it into two parts. The original extent of Lima was 22 *cuadras* or squares, from east to west, and 14 from north to south. Its present area exceeds 15,000,000 square Castilian *varas*,* and its aspect is somewhat changed from, say,

* *Vara* = a rod, or pole = $5\frac{1}{2}$ yards, or $16\frac{1}{2}$ feet.

fifty years ago, when it was surrounded by strong walls, which had been first erected in 1683, during the Viceroyalty of the Duke de la Palata. The wall was only demolished in 1870.

Although exposed to the winds from the south and west, the city is well sheltered by the mountains on the north and east. These latter are spurs of the great chain of the Andes, which run nearly north and south for twenty leagues to the east of the Capital. Westward the city commands a view of the Pacific Ocean; to the south-west one can see the island of San Lorenzo; and to the south are visible the Morro Solar or Morro of Chorillos.

There are only two seasons recognized in Lima, and these are clearly defined—the summer and the winter. There blow here many, and sometimes very aggravating, winds; but it is a mistake to say, as some chroniclers have done, that it “never rains” in the city.

I believe it would be more correct to assert that continuous rains are unknown, but towards the end of April or the beginning of May the *garuas*—a very fine rain, resembling our Scotch mist—sets in, and continues until November, with more or less intermission. It is very disagreeable, and not sufficient to necessitate the use of an umbrella, but quite capable of producing a moist and sticky feeling about the face and hands. During the rest of the year these precipitations occur only at the changes of the moon. In summer real rain falls, but in heavy showers of very brief duration. It can be intensely hot and as intensely cold at times.

The visitor to Lima must be prepared for earthquakes. The statement looks alarming, but, as a matter of fact, it has been many years since any serious seismic disturbance took place—a fact which does not, of course, render a repetition any the more improbable,

since Nature fails to maintain any degree of regularity in these matters. I find upon searching records, that the worst visitations have been those which occurred in 1630, 1687, 1746, 1806, and 1848. Upon an average there are eight "quakes"—mild visitations of but little moment—in the year. The shocks usually pass from south to north, following the direction of the chain of mountains.

Perhaps one of the most charming aspects of Lima is that which is afforded by the exquisitely carved Moorish balconies, many of which still remain, and are carefully maintained, even the poorest thoroughfares possessing their share. One also sees many modern houses with their old-time "bird-cage" windows; but, generally speaking, these have been replaced by modern glazed windows. While the streets do not run in the direction of the four cardinal points, they mostly intersect each other at right angles, forming square blocks of houses, called *manzanas*. As in most Latin-American cities, the rows of buildings are almost equal as regards the number of houses which they contain, there being from thirty to fifty doorways upon either side of the street. Were it not for the many flat roofs—the small amount of rainfall rendering peaked roofs unnecessary—the city would present a very handsome appearance from an elevated position, with its numerous brightly-tiled church roofs and steeples, its many magnificent Government edifices, and the several semi-tropical parks and open spaces which exist. A goodly proportion of the private houses also have their well-kept and be-treed *patios*, with inner gardens, which lend additional colour to the scene.

Of modern, as of old, public buildings Lima possesses many beautiful specimens. The first edifices which were erected by Pizarro consisted of the

Cathedral, the Government Palace, the Archbishop's Palace, and the City Hall. The handsome church, much modified, still stands upon the same spot, and contains the embalmed body of its pious, but piratical, founder. The Government building, modernized in every particular, stands as an official edifice, and has been occupied continuously from the year 1535. The first tenant was the great conqueror Francisco Pizarro himself, some forty-three Viceroy's following him, of whom the last was Don José de Lacerna, who capitulated in 1824 to the Republican Army after its victory at Ayacucho.

The chronicler is tempted to farry lovingly in describing this, perhaps the most interesting of all the South American capitals; but, unfortunately, the insistent limitations of space and more prosaic requirements of to-day forbid. One is inclined to commit the error against which Tacitus warns us, *vetera extollimus recentium incuriosi*. Let me, therefore, proceed—though unwillingly, I admit—to speak of Lima as it is.

Peru's modern Capital boasts of a population exceeding 150,000 souls. Among the residents will be found some of the handsomest and straightest-built men, and undoubtedly some of the most beautiful women, to be found in South America. It is quite an exception to meet a really plain Peruvian, and almost as seldom does the traveller encounter a poor one.

The city is divided into five quarters, comprising ten districts; which, again, are subdivided into forty-six *barrios*. Of these different districts, some four are merely suburbs or outlying parishes, the principal divisions of the city being as follows: San Sebastian, San Marcelo, El Sagrario, Los Huerfanos, Santa Ana, and San Lazaro.

The streets of Lima are what we Europeans should consider rather narrow, measuring some 30 to 35 feet

THE
CATHEDRAL
OF
LIMA



LIMA : INTERIOR OF CATHEDRAL (FIRST BUILT IN 1541 ; REBUILT IN 1758).



THE CEMETERY AT LIMA.

across, but they afford pleasant shade from the hot sun, which was the one thing which prompted the Spaniards to thus construct them. Formerly, a surface-drainage and sewerage rendered Lima anything but pleasantly odorous; but to-day there has been a very good underground sewerage system introduced, and with which all of the houses within the city boundaries are connected.

In no South or Central American city will you find a handsomer open space than the Plaza Mayor, which occupies the very centre of Lima. Flanking this large square is the imposing Cathedral, and which occupied ninety years in the building. On the west side is the Municipal Palace, and on the north side stand the extensive range of buildings known as the Government—once the Viceroy's—Palace. The fourth side of the square is occupied by private residences, shops, and a large club building, all of which are in keeping with the main structures, and have in colour been mellowed by time into one homogeneous whole. Magnificently kept gardens, with a wealth of tropical trees and flowering-shrubs, occupy the centre of the Plaza, and here, as in all Latin-American cities, foregather, of an afternoon and evening, the "rank, fashion, and beauty" of the Capital—in the case of Lima all three being admirably represented.

The space which was formerly occupied by the wide and clumsy-looking *adobe* wall, built, as already observed, in 1683, and demolished in 1870, is now being utilized for some handsome boulevards, which will soon entirely surround the city, and provide thoroughfares for the use of riders, drivers, and pedestrians. Already some of these arteries have been completed and opened to public traffic, the Bolognesi, the Grau, and others, forming a continuous *paséo*, stretching from the river and passing around the city.

Yet another delightful driveway is the Avenida, leading from the town of Magdalena to the city of Lima, about three and a half miles in length. This thoroughfare measures 125 feet across, and is shaded by a quadruple row of palm-trees. Mention may be made also of Avenida de los Descalzos (Barefooted Friars) which skirts the banks of the river and forms a wide public walk; this is adorned at intervals with handsome statuary representing the twelve signs of the Zodiac, the intermediate spaces being occupied by graceful urns, marble benches, well-kept flower-beds, and brilliant green grass-plots. In length the avenue is two-thirds of a mile, and it commences at the foot of San Cristobal hill—altogether a very charming, reposeful promenade at all times of the year.

Avenida Arco is a favourite "short-cut" leading from the outlying districts to the city; it extends from the old stone bridge crossing the river to the modern Balta bridge. The recently completed Columbus Avenue is about one-third of a mile long, 125 feet wide, and it connects the Exhibition Square with the Bolognesi Square, being built in the form of the arc of a circle, and traversing the modern quarter of Lima.

There are altogether some five-and-thirty public squares to be found in Lima, which compare with the sixty-seven churches. Of notable monuments there are likewise a considerable number, the most conspicuous being five which are known throughout South America, and have formed the subjects of postal-cards which have probably been sent to every quarter of the globe. I refer to the mighty Columbus monument, built of pure marble, which represents the Genoese discoverer raising from the ground a poor Indian woman, one of the many, probably, that he ruthlessly sold into slavery; to the bronze and marble

statue erected to Simon de Bolívar, the great Liberator; the Dos de Mayo ("Second of May") monument, commemorating the defence made by the brave Peruvians against the Spaniards in 1866; the Bolognesi monument, dedicated to the memory of Colonel Francisco Bolognesi, who lost his life in 1880 in the defence of Arica Morro against the Chilian forces; and, perhaps the most beautiful of all, the San Martín statue, which shows that great man proclaiming the independence of Peru. There are several other monuments, but there are none more inspiring than these.

Under a separate chapter I have referred to the transportation arrangements in Lima, so far as the tramways are concerned. There are likewise a great number of well-equipped cabs and carriages. The former are not only plentiful, and obtainable at all hours of the day and at most hours of the night, but the fares are extremely reasonable, and the Jehus generally are a polite and an amiable class of public servants.

For instance, one may travel all round the city, and within its limits, for 30 cents for either one or two passengers; three may travel for 40 cents, and four for 50 cents, or, say, for a total of 1s. Children under seven years of age travelling with an adult are carried free, other children being charged for at 10 cents, or, say, 2½d. each. By the hour the charge is 1 *sol* (2s.), and 20 cents for every additional quarter of an hour. After 11 p.m. the fares are raised 50 per cent.

The many beautiful public parks and gardens of which Lima is possessed may be seen to be tenanted at most hours of the day. Besides the tropical trees and flowering beds of the Plaza Mayor, where military bands come to play admirably at certain hours and upon most days of the week, there are the Zoological Gardens, where, in addition to a great variety of wild

animals and birds, are found some magnificently kept gardens ; the Botanical Gardens, containing specimens of every tree, plant, and shrub known in Peru ; the Parque Colón, fronting the Avenida, and a fashionable drive known as Paséo Colón, and also as the "Avenida 9 de Diciembre," which leads from the Bolognesi Circle or Exposition Park, and thus forms a link in the system of wide boulevards encircling the city.

The Parque de la Inquisición, which, bearing as it does a somewhat sinister name reminiscent of Spanish religious brutality and senseless persecution, forms nevertheless a beautiful rendezvous ; the Alameda de los Descalzos, noted for its exceptionally fine monuments and statuary ; the Alameda de Acho, the tree-lined drive constructed by the Spaniards, and leading to the famous Cerro de San Cristóbal.

While very carefully tended and as carefully policed, all of these places, being dedicated as they are to the use of the public, are accessible at all times ; and no officious interference is observable upon the part of the custodians, such as one meets with from the same overbearing class of menial in England and the United States. I have upon no occasion observed any tendency upon the part of the public, on the other hand, to abuse their privileges, and for the most of the people it may be said that they seem to be as zealous in preserving orderliness and maintaining spic-and-span the appearance of their recreation-grounds as are the Government or the municipalities which control them. There is less litter from discarded paper, broken bottles, and empty meat-tins than can be found in any London or provincial pleasure-ground.

The Spanish-Americans are naturally a very hospitable and warm-hearted people, and they seldom decline to support their charitable institutions, or to dispense *largesse* among their less fortunate brethren. In years

past most of this public charity was conducted through the instrumentality of the Church; and it is even so to-day to a limited extent. But there exist many excellent institutions which are entirely detached from the religious fraternity, and these are very well supported by both the Government and by private individuals.

In several of the cities and towns there are found institutions which are conducted and entirely supported by private charity, and these under ordinary circumstances, and in most countries, would be found either under Government or municipal management. There are, again, certain charitable foundations which are assisted financially by the authorities, who also control—by means of an official representative—all the receipts and the expenditures.

The Lima Benevolent Society is an institution which has effected some great amount of good, and which compares most favourably with any other similar body of philanthropists in either hemisphere. The revenues exceed \$1,000,000 annually, and out of these the Society entirely supports the Second of May Hospital, a modern institution which accommodates 1,000 patients of both sexes. It also partially maintains the Santa Ana Hospital for Women, which was founded in 1549 by the first Bishop of Lima, Monsignor J. Geronimo de Loaiza, while it assists with finances and controls the management of the Maternity Hospital, the School of Midwifery, and the Military Hospital of San Bartolomé. The same society is responsible for the management of the Insane Asylum, as well as of two Orphan Asylums—one for foundlings and the other for orphan boys—who are given a sound commercial and industrial education or put to some useful trade.

The Institute Sevilla, founded from the funds derived

from the legacy bequeathed by Señor José Sevilla, educates and clothes 100 girls, and teaches them occupations likely to be found useful in after-life. The School of Medicine, which is mentioned more fully in another part of this volume (see Chapter VIII.), is another excellent institution which effects much real benefit to the community.

Nowhere in Lima—and I am almost tempted to go so far as to say, nowhere in the Republic of Peru—will one come across the same kind of abject poverty and the hopeless human misery that continually confronts one in the streets of London or New York, or, indeed, in any of the large commercial centres of England and the United States.

The noble human emotion of charity seems to be not alone more common in this country, but its definition to be more liberally construed. The philosopher may tell you that indiscriminate alms-giving is the cause of much mischief; that it directly encourages vagrancy, deceit, and voluntary degradation; that it weakens self-reliance, and, by thus demoralizing, keeps the recipient on the downward course of professional poverty resulting in absolute pauperism. To address such an argument to a warm-hearted Latin-American would be fruitless—he or she would fail entirely to comprehend such casuistry; and in all probability would reply that full inquiries in every case of appeal are impossible, and that in giving alms to their poorer brethren they consider that they cannot be held responsible for ultimate economic effects, which, at the best, are purely speculative and the subject of widely different views. You will never dissuade a Southerner from seeking to help the poor; and the Peruvians are open-handed and warm-hearted to an unusual degree.

Lima is particularly fortunate in the situation and character of its environs—possessing as it does a

number of pleasant and easily reached suburbs which are yearly becoming more popular. Callao—scarcely a choice place of residence, however—I have described; likewise its satellite, La Punta. But there are Miraflores—meaning “behold the flowers”—Barranco, and Chorillos. The first-named is a picturesque little place, situated in the centre of a large cove or inlet of the coast, and receiving the full benefit of the agreeable breezes which blow here for the greater part of the year from the sea. The winds are from the southwest, and, as a rule, they are far from violent. On some occasions they become tempestuous.

Chorillos is the Brighton of Peru, and, like our own “Queen of Watering-Places,” it rose from a humble fishing village to the dignity of a fashionable watering-place. Its former humble inhabitants—Indians—have migrated from its now sacred precincts, and congregate in a small and struggling village, some distance up the mountain-side, and called “Alto”—or “High Peru.”

The town of Chorillos has now about 1,200 or 1,300 residents. Before the war with Chile it was even better patronized than it is to-day, some of the houses, according to photos that I have seen, being well appointed and most artistically built. But the Chilians came as conquerors, and the same savage spirit which prompted them to ruthlessly destroy the priceless MSS. in the National Library at Lima induced them to burn and destroy Chorillos, so that not a single house escaped destruction or mutilation.

The town of Barranco straggles along the edge of an uneven cliff, about 100 feet above sea-level, and a covered decline leads down to the sea-beach where delightful sea-bathing can be had. From the terrace, which has been formed on the side of the cliff, a clear outlook to sea, and occasionally some beautiful sunset effects, can be enjoyed. There is also an hydraulic

elevator, not unlike the Lynton and Lynmouth lift in North Devon. Chorillos, however, is by no means a cheap place to live in.

Ancón is another agreeable small suburb, but situated farther away from the Capital, being distant some 38 kilometres. It is a bathing-place, and possesses some very smooth and even sands which stretch away for several miles. The town itself is ugly and straggling, and the surrounding country extremely bare of vegetation. But the climate is health-giving, and many individuals who suffer from pulmonary complaints can live in Ancón when they cannot do so in Lima. It is infinitely better than La Punta in this respect, the atmosphere in that place being found somewhat damp and humid.

Bellavista is situated some 2 kilometres east of Callao, and was founded as a kind of temporary place of residence after Callao and Lima had been completely destroyed by the earthquake in 1746. It was mainly occupied by shipping people; and here also were deposited the great stores of wheat which were purchased from Chile to feed the starving people. The original buildings no longer exist; but others of a more substantial character have been erected on the site, and are connected with Callao and Lima by a short branch of the railway belonging to private owners.

Once there was a handsome and commodious Government factory at Bellavista, but the Chilians destroyed this, as they destroyed so many other things belonging to the Peruvians—acts of archaic savagery which nothing could, or ever can, excuse.

The Chilians, in waging their horrible wars, seem to carry out to the letter the inhuman doctrine of that other American—but “North” this time—General Sheridan, who declared that “the main thing in true

strategy is simply this: to first deal as hard blows at the enemy's forces as possible, and then cause so much suffering to the inhabitants of a country that they will long for peace, and press their Government to make it. Nothing should be left to the people but eyes to lament the war." Such a lesson was that of unfortunate Peru in 1881-1884.

Municipal affairs in Lima appear to be singularly well-managed. The Mayor possesses a typically English name, "William Billinghamurst," and he is both very popular and very enterprising in his official capacity. He has been in office since January, 1909, and at the time of his election he found the municipality in debt to the extent of £410,103. By the month of February in the following year he had reduced this amount to £367,412, and this year (1911) it will be still further diminished.

Nevertheless, Mr. Billinghamurst has been unable to resist the overwhelming and irrepressible desire upon the part of all Latin-Americans to build a "National Theatre," and some considerable amount of money is now to be expended upon this object. The new place of amusement is to be erected upon the Plaza San Juan de Dios, near to the terminus of the Lima-Callao electric railway. The sum expended to acquire properties which are found to stand in the way of the new structure alone amounts to £30,000.

The revenues of Lima Municipality are approximately between £100,000 and £105,000 per annum, and the expenses amount to about the same.

Mr. Billinghamurst's father was an Englishman, and he himself was born in Arica in July, 1851. He was elected a Deputy in 1878 to represent Iquique. In 1880 he was appointed Commissioner of Defence, to study the River Desaguadero and the Andine plateaux. He fought in the battles of 1881-1885, and when peace

came he was appointed Consul-General of Peru at Iquique (now Chilian). In 1895 he became Vice-President of the Republic and a Senator. He is a distinguished author of scientific works, some of his publications having achieved European fame. He makes a most excellent Mayor.

CHAPTER X

Cost of living—Rentals—Household expenditures—Wages—Domestics—Mary Anne's paradise—Native labourers—Japanese competition—Austrian emigrants—Government encouragement—Sport and amusement—Lima Jockey Club—Regatta Club—Football's popularity—Lima Cricket Club.

THE cost of living in Peru, compared with prices prevailing in Europe, is found to be decidedly expensive, unless one knows one's "way about"; for here, as elsewhere in the world, the stranger is frequently exploited by the native or foreign shopkeeper, and the still more enterprising landlord. To-day the necessities of life have advanced to a very high standard, and the tendency is, if anything, to increase rather than decrease. In Lima itself, hotel rates are from 20 to 30 per cent. in excess of what one would pay for the same value of board and lodging in England or in any European town—Paris and St. Petersburg, perhaps, excepted.

Had any traveller come to Peru in 1908, and had he set up housekeeping on his own account, he would have found a condition of things in existence rather encouraging, in spite of the fact that even then prices were some 15 to 20 per cent. higher than they had been. At that time many of the shops were selling off goods at very low prices, since most of them were overstocked, the wholesale warehouses being likewise choked and congested with European and North American merchandise of practically every

kind. House-rents, however, remained high, in spite of many new buildings going up in different directions.

Then followed a commercial and financial collapse; trade suffered a general set-back. Imports, as a consequence, were much restricted, and retail prices commenced to again mount as these fell off.

To-day residents and visitors alike are suffering from the action and reaction, and the cost of living is found exceedingly heavy. The prices of some few articles which prevail in the towns and coastal stations alike are as follows: Sugar, which is grown in the country, costs 24s. per quintal of 100 pounds, or, say, 2 $\frac{3}{4}$ d. a pound; while in Liverpool the same article is sold at 9s. per quintal, or, say, at a little more than 1d. per pound. Fresh meat is so expensive that only the well-to-do can afford to buy it more than once a day; fresh fish is hardly less so. Even rice, potatoes, beans, maize, etc., grown in the country, are high; but these form the ordinary food of the *peon*-class, and must be purchased. As I have shown elsewhere, wheat has to be imported, and this commodity, due to heavy shipping freights and railway transport to the interior, is put up in price by the retailer by some 50 per cent. Rentals are nearly 40 per cent. higher this year than they were, in spite of many new residences having been built and the cheaper transportation rates to the suburbs. In Lima a small apartment, consisting of two or three rooms in a quiet and not too fashionable quarter, costs £4 per month; while a small separate house, containing five rooms, a kitchen, and the usual domestic offices (often without a bath-room), costs from £7 to £8 a month. For anything more pretentious—say, a house with from eight to ten rooms, a small garden, and the usual modern conveniences—anything between £10 and £12 per month must be paid. Property-owners calculate upon a rental of 10 *sols* (20s.) for each room,

1904



OLD SPANISH STONE BRIDGE OVER RIO VILCAÑOTA.

exclusive of water rate, municipal rates, police rates, public lighting, or electric light.

The following comparative table, showing the advance in living rates in Lima and most of the other towns in the course of some nine years (the difference is very slight between the one and the other), may be found of interest :

Expenditure.	In 1902.	In 1911.
Monthly rentals (see above) ...	£4	£7 10s.
Wages (per month)	Cooks, 12s. Maids, 12s.	Cooks, 22s. Maids, 23s.
Water tax (per month)	4s. 6d.	5s. 10d.
Coal (per sack of 150 lbs.) ...	3s. 7d.	6s. 6d.
Beef or mutton (per lb.)	6d. and 8d.	9d. and 11d.
Pork (per lb.)	6d.	10½d.
Milk (pure) per litre = 1¾ quarts ...	4¼d.	6¼d.
Fowls (each)	2s. 6d.	3s. 2d.
Geese (each)	1s. 8d.	5s. 6d.
Potatoes (per lb.)	1¼d.	2¼d.
Eggs (each)	2d.	3d.

Other articles, such as ham, beer, wines, salt, coffee, tea, lard, beans, butter, matches, chick-peas, lentils, rice, and condiments, have advanced proportionately between 40 and 100 per cent. On an average of nine years, the increase shows an average of between 65 and 95 per cent.

Employment is comparatively easy to obtain throughout Peru, and in Lima, Arequipa, Cerro de Pasco, and other towns where Europeans or Americans are found in any number, domestic servants are usually at a premium. In fact, Peru may be termed "Mary Ann's Paradise," and she knows it too. Clean, domesticated, and faithful female servants are obtainable all the same, for the *peon*-class, from whom they are partly recruited, are very susceptible to kindly treatment, and are usually as willing to enter the service of a foreigner as that of a native. Having

already given the wages of this character of service, I add the remuneration paid to other wage-earners. Clerks and governesses, unless they are engaged upon contracts in the Old Country, and have these contracts duly *viséd* by the British Consul immediately upon arrival, are strongly cautioned to proceed with their engagements very carefully. They stand but little chance of finding casual employment, and even if they do so, they cannot always feel certain of being regularly paid.

The rates for clerks range from £250 to £350 per annum, but, in view of the excessively high cost of living, even the larger amount seems to be small. Governesses of European birth are poorly paid, and generally find that after providing for their personal expenses they have but little left over from their meagre salaries. Some German governesses, however, whom I have met have expressed themselves as satisfied with their experiences. These ladies manage to live, and even to save, when women of no other nationality could do either, and they appear for the most part to be quite contented anywhere, provided it is not in their own country. The German—male or female—but seldom expresses any sentimental regrets in leaving the Fatherland.

Carpenters make from 4s. 6d. to 10s. per diem; masons, from 6s. to 12s.; blacksmiths, from 9s. to 20s.; mechanics, from 9s. to 12s.; painters and decorators, from 8s. to 15s.; coachmen and grooms, from 20s. to 35s. per month; gardeners, from 25s. to 50s. per month (in both these latter cases board and lodging must be found, or the value added to the wages); electric-car drivers earn 6s. per diem; hotel porters, 5s. per diem and their full board; male servants in hotels or private houses, from 30s. to 50s. per month.

While the Japanese are gradually making their

influence felt commercially in most parts of the world, they seem to have had a particular partiality for Peru ; and these enterprising people have succeeded in establishing a sound trading connection with the Republic. There is a Consul-General—Mr. Tsuneji Aiba—who speaks Spanish as fluently as he does English, which is equivalent to saying like his mother-tongue. Mr. Aiba asserts that there are over 7,000 of his countrymen in Peru, and that every year the number shows an appreciable increase.

It is only since 1899 that the influx commenced, the great proportion—fully 80 per cent.—being men. The majority of the Japanese labourers find employment on the sugar estates, and I have seen many of them at work in their plodding, serious way, moderately reliable in regard to punctuality and attention to their duties, but unapproachable and forbidding from a social point of view. Few of them will consent to undergo the privations and dangers attendant upon the occupation of rubber-collecting or cultivation ; but some few are to be found working upon the cotton-fields.

The average rate of pay amounts to 1 *sol* (worth 2s.), about 1 yen of their own money per diem, and out of this meagre wage they manage, by extreme frugality, to save a sufficient sum to take them back to Japan in a few years. If they would consent to work in the rubber forests they would receive 5s. per diem. But there many would die off very speedily. In Japan any ordinary labourer can earn his 1s. 6d. per diem, and the cost of living is infinitely cheaper ; so that it is rather difficult to understand why these emigrants should come away so far from home.

Upon investigation, I learned that the Japanese who had been imported into Peru were found very intelligent workmen, and there is some competition among

employers upon sugar estates, farms, and rubber-lands for their services. Japanese are also employed as domestic servants, restaurant waiters, carpenters, plasterers, masons (but they cannot compare in these capacities with the Italians), road-repairers, boatmen, gardeners, fishermen, dairymen, and laundrymen.

In Lima there are over 800 Japanese so engaged, and in Callao there are about 150. In these two cities the general employment which is followed is that of barbers, the Capital possessing some 160 men and 7 or 8 women, and Callao 42 men and 2 women, all of whom are hair-cutters and shavers. The Japanese Consul-General gives me the following further particulars of the different occupations followed by the Japanese in Peru: Small traders, 77; restaurant keepers, 68; grocers, 45; carpenters, 54; and coal-vendors, 19. Of factory hands there are between 30 and 40.

While, as I have observed, there are many employers of labour who would not only like to see more Japanese employed in Peru, but who have made every effort to procure the necessary number of men from the Land of the Chysanthemum, it appears that the Japanese themselves are not as keen as they used to be to sell their labour to Peruvian employers.

Many rubber-pickers have been brought from Japan; but the Government of that country have latterly introduced so many restrictions and insist upon such onerous contracts being entered into, that the employers are unable to continue the introduction of this kind of labour with any profit to themselves. Additionally, they declare that the class of workers now sent over are utterly without morality or rectitude, that they are bad pickers, that they desert rapidly, leaving the contractor with the cost of the importation

THE
CATHEDRAL
AT LIMA



THE CATHEDRAL AT LIMA, BUILT BY FRANCISCO PIZARRO.

and very little lucrative work to show as a set-off against his heavy outlay.

Upon inquiring the reason—if this really be the case—why any effort at all should be made to introduce Japanese labour in the rubber forests, I was informed that the casual labour was found even worse, and the Indian *peons* more difficult to deal with, being “nervous, suspicious, and unwilling to travel far from their own native villages.”

With the experience of the harsh and cruel treatment which some of these unfortunate beings have met with at the hands of certain European employers, it is scarcely surprising to hear of their “nervousness” and “suspicion.” No doubt the labour question in Peru will be settled in course of time, as it has been in South Africa, in the West Indies, in the Malay Peninsula, and in Ceylon. If the employers understood and practised the virtue of kindness a little more than they do, much of the present trouble would not have arisen.

In Peru, as elsewhere throughout the Christian world, the coming of the Japanese has not been regarded with much gratification; and there is reason to believe that a strong popular movement would arise if the immigration became very much more pronounced. Further introduction into Peru of the Chinaman—who is ever a more tractable and a less assertive individual than the Jap, and whose bare word is more to be trusted than the Jap’s bond—has been already tabooed (see Appendix). Latin-Americans, who are not, perhaps, the most energetic workers on the face of the earth, fear more active competition upon the part of the yellow man, and resent his intrusion accordingly. Some patriots of Peru—and especially those who cordially dislike to work at all, and who never perform any kind of labour if they can possibly avoid it—have already

raised the parrot cry, "Peru for the Peruvians!" and "Down with cheap Chinese labour!" Among the excitable and free-thinking populace, a battle-cry like this would be certain to secure a certain number of adherents; and thus some trouble—not necessarily of any great importance—might have ensued had Oriental labour made any great advance, as it threatened to do as soon as business became more pronounced with the opening of the Panama Canal. But the wise Executive Decree of May 14, 1909, prohibiting further introduction of Chinese labour, effectually prevents this from occurring.

A very much more desirable class of emigrants are the Austrians. A citizen of that country, Herr Ritter Othmar von Hauck, holds a concession from the Peruvian Government to colonize a large area of ground, extending to over 6,000 hectares of forest-land, and which he has bound himself to distribute among 300 Austrian families, allotting to each of them about 20 hectares. The Government pays the third-class passage of these people from a port in Europe to Yuriman, situated on the Huallaga, an affluent of the Amazónas, or Marañon. The travelling expenses incurred on behalf of the emigrants from the port to the settlement are borne by the concessionaire; but these are of little moment, since the distance traversed is very slight. The concessionaire, on the other hand, receives an advance of £20 for each family of at least three persons, and he is bound to maintain, during five years, the same number of families for which he has received advances.

What the Government has done for this enterprising Austrian, I feel it would be willing to do for any other individual of any other nationality who presented an equally acceptable proposition. The advantages of such a concession are obvious, for in return for a trivial

expenditure upon his part, an outlay which is covered over and over again by the contribution received from the Government, he becomes the virtual owner of a small principality, situated in a healthy and extremely fertile region, and capable of almost unlimited expansion.

Where so many English people reside, there is certain to be some attention devoted to sport; and I have found throughout Latin-America that it needs only the slightest impetus to instil into the people a sincere liking for manly sport, and that they pursue it for sport's sake.

In Lima many kinds of open-air pastimes are indulged in. The winter racing season is from July to December, and many programmes are carried through. The Jockey Club of Lima, which may be compared for importance or affluence with the Jockey Club of Buenos Aires, is a well-organized and well-conducted institution, supported by the leading residents, both native and foreign, the meetings being considered as great social events. The President and many of the Cabinet Ministers usually attend, while several of the members maintain stables and enter horses for the principal events.

The oblong track, situated near the Paséo Colón, measures 1,600 metres (about 4,900 feet), and the grand stand, which is a modern erection, will accommodate several thousands of spectators. Betting is carried on upon the Pari-Mutuel system.

There is likewise the Union Regatta Club, which is making some progress in popularity.

I was considerably amused to read, in connection with this Union, a report of the meeting which took place in the month of June, 1909, from the gifted pen of a local critic—one W. Scott Lorrie, contributed to an English publication—which, either innocently or

deliberately, printed the account "as she was wrote." Here is a portion of Mr. W. Scott Lorrie's beautiful contribution :

"Want of space prevents a more detailed description of this regatta, the likes of which ought to be encouraged, not only among the Peruvians themselves, but also among we foreign residents who are such enthusiastical sportsmen."

What a pity that "space prevented a more detailed description"! Conceive how amusing it might have proved!

Football seems to have an altogether extraordinary fascination for Latin-Americans, although it was a game entirely unknown to them before it was introduced from England. Lima and Callao are very severely "bitten" with the mania for furious football, and during the months of October-May it is played perpetually. Most enthusiastic are the players; and, moreover, they play extremely well. The Callao team have a very competent captain in Mr. Joseph Dodds.

The Lima Cricket and Football Club is another well-patronized coterie of sport-loving men, and their games are watched by considerable crowds of interested spectators composed of both sexes. Peru has not yet witnessed the degrading spectacle of women-footballers or women-cricketers; and with the knowledge one has of the true femineity of Peruvian ladies, there is no probability of their emulating the hoydens who exhibit themselves to satisfy their own vanity and the vulgar tastes of the ragamuffin class in England.

CHAPTER XI

Public worship—Freedom granted—Intolerance of foreign missionaries—Charity of Catholic priests—Position of English Church in Peru—Late and present chaplain in Lima—Breaking away from priestly control—Bishoprics and curacies—Lima Cathedral—Valuable Church possessions—Public processions—Religious service at Arequipa—Reverent attitude of populace.

IN spite of the fact that a clause (Article 4) in the Constitution of the Republic maintains that "The nation professes the Apostolic Roman Catholic religion; the State protects it, and does not permit the public worship of any other," under no Latin-American Government is there greater freedom for, and licence accorded to, alien religions than in Peru. This is all the more remarkable in view of the fact that the Peruvians still maintain the most complete adhesion to Rome, and in spite of the wholly aggressive and objectionable manner in which certain Protestant missionaries have come to the country to stir up revolt and rebellion among the poor and ignorant Indians against the teaching and the influence of the Church.

The attitude of some of these doubtless well-meaning, but quite tactless, people has been little less than scandalous, and it speaks volumes for the good-natured tolerance of the Peruvians generally, and of the ecclesiastical authorities in particular, that persistent and fanatical busybodies should have been left almost entirely unmolested. When the Mormons came to England lately they were roundly denounced by the

halfpenny London Press, and practically hounded out of the country. This was done in the name of "religion," nearly all of the most bitter opponents being found among members of the clergy, certain notoriety-loving Bishops and minor Church dignitaries (who hope one day to become Bishops) joining in the hue-and-cry, and forgetting all about their "Christian charity" in the very human love of the pursuit of rivals who seemed destined to become too successful.

What if the Peruvians had behaved similarly, and had chased out of their country the noisy and meddling male and female missionaries who, not content with invading Peruvian religious territory and violating the conditions under which they, as foreigners, were permitted to reside in the country, resorted to anathematizing and vilifying the Catholic priesthood in special illustrated volumes and countless newspaper articles, women, as usual, taking the lead in this unworthy crusade.

How few of these fanatics, I wonder, ever remember—how many of them ever knew of—Carlyle's words upon the question of religion? "It is unworthy of a religious man to view an irreligious one either with alarm or aversion, or with any other feeling than regret and hope and brotherly commiseration." The Protestant missionaries in Peru cannot even plead the excuse of dealing with irreligious individuals, for the poor Indians of that country are, of all people, the most blindly devoted to their faith, which forms, indeed, the only sheet-anchor to which they can cling during their usually dull, featureless, and exceedingly hard lives. And yet it is this consoling faith, this one tangible, throbbing hope, of which the Protestant missionaries would forcibly deprive them, offering them in substitution nothing but a rhetorical confusion of thought, a paralyzing doubt as to their ultimate

salvation, and a veiled distrust of their best, their only, friends—the priests.

I am not a Catholic in belief, and have no religious prejudices whatever, but I have seen so much real good effected by Catholic priests among the very poor and ignorant of the Indian races, and I have witnessed so many crass failures among their rivals in the “spiritual business” to improve upon their methods or to emulate their disinterested charity, that I cannot but regard the attempt to convert the Peruvian Indians from Catholicism to Protestantism as an act of unmistakable presumption and stupidity. These self-appointed guardians of other people’s souls would endeavour to inflict upon their innocent pupils beliefs which they cannot understand, let alone accept; we see the same bigoted class of individuals expending other people’s money upon the conversion of one Jew, who is probably starving or demented by trouble, from the faith which his ancestors professed and practised thousands of years ago, and which is the very foundation of their own convictions. Well might Lucretius exclaim in his “*De Rerum Natura*”—*Tantum religio potuit suadere malorum.*

There can be no question that the English Church in South America is in a very parlous condition, and so serious is its state of inefficiency and so pronounced the lack of funds that the Bishop of the Falkland Islands, the Right Reverend Dr. F. D. Blair, in whose vast diocese is included Peru, has during the past few months been in England on a canvassing tour for the purpose of exciting public interest—and incidentally collecting funds—for his Mission. The English schools under his lordship’s widespread jurisdiction have long been closed for lack of funds to support them, and Dr. Blair thinks that for the purpose of putting the Church upon a thoroughly sound financial basis at least

£100,000 is necessary. The Bishop has, at least, backed his opinion by a notable contribution out of his own by no means too large salary, heading the list of donations with a sum of £500, in the form of a personal guarantee for the immediate discharge of the most pressing debts. Having thus evinced his determination to carry out urgently the much-needed reforms, it is sincerely to be hoped that British residents throughout the length and breadth of South America will come to his aid, and show, in a similarly practical form, their readiness to promote the welfare of the English Church in South America. Nothing which I have said regarding the methods of certain missionaries carrying on propaganda in Peru bears reference to the work performed by the English Church in South America—work which has been the means of spreading much moral and intellectual enlightenment without violating the laws of decency and hospitality.

For some three years the Rev. A. Miles Moss acted as Chaplain to the Anglo-American Church at Lima, and although not ranking as an eloquent preacher, he succeeded in thoroughly endearing himself to the mixed congregation of British and Americans, who were unfeignedly sorry to lose his services. Mr. Moss was successful also as a photographer, author, and conversationalist, and he was generally esteemed as a very pleasant companion.

As a naturalist Mr. Miles Moss has discovered many rare species of butterflies, and has, through some readable articles, made known some hitherto unsuspected regions for travellers and entomologists.

Upon his departure from Lima in the early part of last year (1910) his place was filled by the Rev. W. Duncan Standfast, B.A. Oxon. (Jesus College), who is the Resident Chaplain.

Services are held in the well-built and comfortable little church, situated in the Calle Pacae, Lima, on every Sunday at 10 a.m. On the first and third Sundays in the month Holy Communion is held after Matins, on other Sundays at 9.15 a.m., and on Saints' days and Holy days at 8.30 a.m. Evensong and Sermon days are chosen on the second Sunday in the month, and choral Evensong, without sermon, on the last Sunday ; while children's services take place every Sunday at two in the afternoon. In Callao services are held under the auspices of the same incumbent every Sunday, Holy Communion being at 8 a.m. and Evensong, with sermon, at 8.15 p.m.

The position of the English Church in Peru is peculiar. It is tolerated, but not encouraged, and there seems less necessity for any special attention upon the part of the authorities on account of the apathy shown by the English-speaking community in attendance at public worship or in support of the Church's maintenance.

While the Church of Rome continues to hold the majority of Peruvian women securely within its folds, and while the attendance of such devotees at early Mass and both day and evening services is remarkably encouraging to the priesthood, the men on the whole have broken away from the control once exercised over them, and are inclined to argue upon the tenets of Christianity, even denying its Divine influence.

Some of them will tell you that it is quite easy to account for Christ's appearance and effect upon the rest of the world upon purely natural grounds ; that He came at a time when the older civilization of the classical world was disintegrating ; when Rome, having become the mistress of Empires, was being gradually undermined by her luxury ; when her free institutions, adapted to a city, had proved incompatible with the

demands of a military empire, and her religion had melted before the wider conception of the brotherhood of man as taught by the Stoic philosophy, when philosophy itself was being lost in mysticism, and the world was anxiously looking for some new religion.

All this, and much more, we have heard before, but not from the lips of people still professing and practising the Roman Catholic faith. Thus one is struck by the general feeling which seems to have spread among the male population in South America generally, and where attendance at Church celebrations, except upon extraordinary occasions, is very meagre. Moreover, the Peruvians have witnessed the many abuses which their Church has committed in times gone by, and with the growing education of the upper and middle classes and the broadening of the mind by occasional travel abroad, the Peruvians are commencing to think for themselves, and to refuse to submit any longer to the dictation of men in matters of conscientious belief.

But it is not only among the Catholic churches that the attendance at Divine worship is falling off. In practically all of the Latin-American States which I have visited I have been informed by the Protestant Chaplains (where there had been any) that it seemed useless and hopeless to endeavour to inspire the British residents with religious fervour or to induce them to support their Church more generously, or if they could not afford to contribute towards its maintenance, at least to encourage the priest in charge by attending the services.

Except when there is the attraction of a travelling Bishop or a memorial service, the attendance does not usually exceed a score of worshippers, of whom more than one-half are always composed of women. No amount of argument or persuasion apparently influences the absentees. You may tell them that attendance at

some place of worship is the only means, moral and intellectual, of enlightenment, and by absenting themselves they influence others to do the same thing. One Englishman to whom this argument was addressed in my hearing replied that in his opinion "honesty ought to be the first principle in every man's life"; and as "he did not believe in the Christian religion, and as his wife was a Roman Catholic, he preferred to remain away," more especially, he added, "since he was always occupied during the week, and found Sundays the only days upon which he could obtain a game of golf."

The South American Missionary Society, which has an annual income of over £36,000, should be able to do something in Peru without creating a hostile feeling, and, in fact, it has effected a certain amount of good; but much remains to be accomplished, and much that might be avoided, especially in the way of making fewer enemies among the Catholic priests, which bad policy has resulted in so much bitter feeling and opposition against Protestant missionaries.

The Republic of Peru for religious purposes is divided into nine Dioceses or Bishoprics: Lima, which is the seat of an Archbishop; Chachapoyos; Trujillo; Huaraz; Huánuco; Ayacucho; Cuzco; Puno; and Arequipa. The Bishoprics are again divided into curacies, which are in charge of curate-vicars, the total number being 613, distributed as follows:

Diocese.	Curacies.
Lima (Archbishopric)	66
Cuzco (Bishopric)	82
Arequipa (Bishopric)	71
Trujillo (Bishopric)	103
Ayacucho (Bishopric)	92
Chachapoyos (Bishopric)	43
Huánuco (Bishopric)	57
Puno (Bishopric)	52
Huaraz (Bishopric)	47
Total	613

With regard to the number of places of worship which are to be found in Peru, I have never been able to meet with anyone who could tell me exactly or, indeed, who had any very definite idea upon the subject. Presumably the ecclesiastical authorities could satisfy one's curiosity; but, as a rule, these gentlemen prefer to "lie low," like Brer Rabbit, and to say as little about the Church and its possessions as possible. They have seen or heard of results of the struggle between the Church and State in Mexico, in Chile, in France, and in Portugal; and they have no desire to attract any undue amount of attention, for fear that almost its last stronghold in Latin-America—which is Peru—may be assailed and perhaps taken.

When one comes to remember that in Lima alone there exist sixty-seven different churches, and that each one of the many towns and villages possesses from ten to twenty places of worship, it should not be a difficult matter to form some estimate of the total number of churches, and which may be put, conservatively, at 1,700—a sufficient supply, one would say, for a population of a little more than 4,000,000!

I have been privileged to view most of the famous churches of the world, to study especially the histories and constructional features of those of Spain, of Portugal, of France, and of most of the Latin-American States. It is a difficult task to decide which among them all appeared to be most impressive or most beautiful. Certainly, the Cathedral of Lima, handsome as it is, cannot be given the preference, since, whatever may have been its architectural attractions before the great earthquake of 1746, its present aspect is somewhat prosaic, and even commonplace, compared with some of the noble religious edifices of the Old World. Descriptions exist of the church as it appeared in 1625, shortly after it had been consecrated,

ninety years having been taken to construct it. No doubt it was then a striking and costly edifice; but practically nothing was left of it after the awful seismic visitation of 1746.

The church was rebuilt on exactly the same site, and was once again solemnly dedicated in 1758. It has now three naves, each one consisting of nine arches, or vaults, the two aisles being formed of ten chapels, in one of which—close to the main entrance—are exposed the mummied remains of Francisco Pizarro, its founder. The only really remarkable wood-carving is that of the choir and stalls, made of cedar and mahogany; but there are, on the other hand, several very valuable paintings, one being by Murillo, depicting *La Veronica*; there is also a Rembrandt.

The impression which is gained after repeated visits to the Cathedral is one of its great vastness—emptiness; for upon rare occasions only have I seen its huge space completely occupied by worshippers. The Corinthian style has predominated, and it may be noticed in the many fluted columns with their capitals, architraves, and friezes decorated with sculptures in demi-relief; in the second story, which is composed of fluted pilasters, and in the second and third parts of the handsome main portals, the lower part being Doric. Among the relics are “a piece of the True Cross,” sent by Pope Urban VIII., and of St. Julian, St. Sebastian, St. Adrian, St. Marina, St. Saturnines, St. Faustos, and of numerous other martyrs.

Other Lima churches of note are the Segrario and Chapel-of-Ease of the Orphans; the parish church, containing eleven altars and one fine chapel-of-ease: Santa Ana, founded in 1572, with eleven altars and one in the chapel-of-ease; San Sebastian, built in 1561 with thirteen altars; San Marcelo, also with thirteen; San

Lázaro, founded in 1563, with a hospital attached; San Pedro, the Jesuits' Church, with some notable wood-carvings; San Francisco; Santo Domingo; San Agustín; and the church of the monks known as Descalzos, or barefooted friars. I have insufficient space at my disposal to record even the names of the many convents and monasteries which flourish, and which are said to contain enormous wealth in the form of gold and silver plate, jewelled altars and costly vestments. As a specimen of the riches which are hidden away in some of these dark and little-visited convents, I attach the inventory of but one—that of the Sisterhood known as Nuestra Señora del Rosario (Our Lady of the Rosary)—which information was placed at my disposal by an obliging priest :

WEIGHT OF SILVER SERVICE OF THE ALTAR.

	<i>Marcos.*</i>
Barrow for carrying relics of saints ...	1,002
Twelve lamps	782
Front of altar	297
Virgin's throne	411
Columns and fittings of tabernacle ...	387
Doors of same	241
Doors of Virgin's niche	103
Four high taper-stands	223
Six smaller taper-stands	150
Arches of the niche	152
Twenty taper-handles	202
Or, a total of	3,950
Or, say	39,500 ounces troy.

But this was not the whole value of the precious ornaments concealed in this one convent, for the Remonstrance contained :

Diamonds	1,304
Rubies	522
Emeralds	1,029
Amethysts	45
Topazes	2
Pearls	121

* The *marco* of 8 *onzas* = 10 ounces troy.

while the Virgin's crown, which was only placed upon the head of the figure at high festivals, contained, I was assured by the same informant :

Diamonds	...	...	...	...	...	...	102
Rubies	...	...	...	...	...	...	102
Emeralds	...	...	...	...	...	...	150
Diadems in brilliants	...	...	...	...	...	...	3
Rings in brilliants	...	...	...	...	...	...	29
Small brilliants	...	...	...	...	...	...	4

The Lima churches celebrate annually 459 festivals, while 39,607 Masses are said, of which 19,506 are paid for by the different brotherhoods. The total number of persons employed in religious services, or in taking care of the churches, is 1,836, including both monks and nuns.

Public processions and other national functions in South America vary but little from such ceremonies which take place in most other countries, except that they nearly always partake of a religious or semi-religious character. No procession is considered complete without some visible symbol of the Christian faith, borne aloft in the form of a highly-gilded figure of the Saviour or of some saint, or a simple crucifix carried with all the solemnity of a High-Church festival and to accompanying slow music. The Latin people love to witness, even if they do not all firmly believe in the sanctity of, a religious procession; and the fact that all the display of pomp and circumstance costs nothing to see is, as with most nationalities, a decided attraction. Peru is still the home—one might say the stronghold—of the Catholic Church, and the priests maintain the popular interest in its proceedings by organizing frequent religious processions and reminding the populace of the existence of their places of worship by the continual ringing and clanging of the church-bells—day and night, especially at night.

An open-air function of this kind is usually blessed with the two indispensable agents of spectacular

success—a brilliant sunlight and a cloudless sky. Let me describe one such scene. In Arequipa, the second largest town in Peru, on a certain Sunday in June, a contingent of troops is about to depart for the frontier, there to defend, if may be, the encroachment of the belligerent Ecuadorians. To-day they are to be blessed by the Bishop outside the Cathedral, after the celebration of an open-air Mass. There is, however, to be observed but little “enthusiasm” as we Northerners understand the term; no tightening of the heartstrings and contraction of the facial muscles as the military companies come swinging by in—it must be admitted—excellent order and in perfect step; no nervous lump arises in the throat from restrained emotion as the solemn strains of martial music herald their approach; no feeling of sorrowful exultation as the flower of the Republic’s young manhood tramp stolidly along on the probable road to death. The Peruvians, nevertheless, are far from being an unemotional people; only their emotions do not show themselves as they do with us, and they are not excited by similar causes.

The Arequipa Pláza is looking its loveliest in its spring garb of green grass and greener trees; its flowerbeds are filled with brilliant-coloured semi-tropical blossoms, its many stone statues and garden paths are neatly trimmed and flagged with multi-coloured tiles. Even the surrounding buildings, many still in the state of semi-ruin in which they were left by the disastrous earthquake of August, 1868, look less dilapidated and forlorn in the scintillating sunshine; and with the decorations of red and white pennons and an abundant display of the national flag, as well as with the roofs loaded with groups of brightly-dressed women and well-attired men watching the proceedings from this vantage ground, the scene is gay and attractive enough.

Every possible place, indeed, is occupied by sightseers, but not a sound is heard, and only the faintest of patriotic enthusiasm is to be observed. Within the Cathedral gates a great throng has already assembled. An open-air altar has been erected, where solemn Mass will be said; the back of the altar is draped with a profusion of coloured paper flowers and gaudy streamers, while the front is occupied by a life-size figure of the Virgin Mary carrying the Infant Saviour, the former being decked out in sky-blue velvet, much lace, and a crown with many jewels upon her brow, while the latter is attired in orange and green satin. The whole is surmounted by a canopy of crimson velvet and gold embroideries, the altar table being, however, of ordinary pink calico with a lace covering used as tablecloth. The tiled steps in front of the Cathedral have been furnished with a carpet and many crimson velvet chairs, which are occupied by the advance-guard of the officiating clergy, the contingent of white-habited Fathers, and a number of white and red surpliced choirboys.

The military staff now arrive to a sound of inspiring martial strains, but they are left to find their places as best they can upon ordinary cane-bottomed chairs. They are followed by a procession of young girls from eight to fifteen years of age attired in white muslin frocks and with long, floating white tulle veils, their elder sisters being costumed in black, with black mantillas, lace mittens or kid gloves. Each little girl goes down on her knees, and remains there presumably in prayer, but really busily occupied in viewing her novel surroundings. Many top-hatted and frock-coated gentlemen, and many more who are attired in the ordinary lounge suit, crowd in until the whole of the occupants of the railed-off portion of the Cathedral approach are packed as closely as are sardines in a box.

All are waiting for "Somebody," and the Somebody

tarries aggravatingly. Nine, half-past nine, ten and a quarter-past ten are struck by the Cathedral clock, and many intermittent outbursts of the jangling bells and military calls from the massed bands lead to expectation as to a commencement at length—only, however, to end in further disappointment.

In the meantime, the Pláza approaches and broad roadways surrounding it have become more closely packed with troops, the public being hemmed in more and more towards the pavements, and forced into the doorways of the shops and houses surrounding the square. Finally, at 10.30, the strains of a solemn chant are heard arising from the military band and the choir-boys, and then, all present uncovering, Monsignor, habited in full episcopal raiment, jewelled mitre on head and silver crozier in hand, emerges slowly from the interior of the Cathedral, and the Blessing of the troops and the colours commences. The Mass itself is colourless, and only those in immediate proximity to the Bishop can hear a single word of the service. To all others the continual bobbing, bowing, and genuflections of the heavily-clad celebrant appear almost pantomimic; nevertheless, all are perfectly reverent, and as one casts one's glance over that great silent multitude of men and women worshippers, with uncovered heads and on bended knees in the roadway, prostrate on the hard flags of the Pláza paths, on the housetops and before the Cathedral itself, the scene appears unquestionably impressive. The troops alone remain standing and covered, their arms gleaming and scintillating in the sunshine, their brown and bearded faces all attention and of solemn expression.

The Mass at length is over; the Benediction is due. The whole congregation is once more on its knees, with bowed heads in the bright, hot sunshine; the silence is intense. The episcopal voice is now almost resonant,

and with his face to the expectant multitude the Bishop's words sound loud and carry far. With one hand grasping the crozier and the other uplifted with the fingers separated, the Blessing is pontifically bestowed ; the worshippers remain for one brief moment in silent prayer, and then the ceremony is over. Monsignor turns his embroidered and bejewelled back, and departs with his clerical train ; the big Cathedral doors engulf them speedily from view. The crowd upon the Cathedral steps begins to thin and to melt away ; the military assistants at the choral effects march off to a spirited air ; the sound of trumpet-calls and the roll of drums proclaim the forming of the troops into companies, and these, too, swing off with their officers, seated upon their prancing steeds, at their head ; and presently the Pláza is almost deserted. The housetops are once more given up to the undisputed possession of the refuse-eating turkey-buzzard ; the bells cease to deafen the air with their clamorous tongues, and the usual calm of Sunday—the same all the world over, in the thronged city as in the lonely desert, unmistakable, inexplicable—reigns again undisturbed.

CHAPTER XII

Agriculture—Sugar husbandry—Prospects of the industry—Early cultivation and first factory—Reasons given for retaining ancient machinery—Typical mill described—Classes of rollers used—Process of manufacture—Type of machinery necessary—Principal sugar estates on coast of Peru—Santa Barbara factory—Extracts obtained—Various installations described.

LITTLE or nothing is known in England concerning the immense sugar industry of this Republic—a fact which is not surprising when, even in Peru itself, there seems to be a paucity of information to be obtained concerning either the extent of the sugar cultivation or details as to its manufacture. It is necessary to proceed from estate to estate and from individual to individual in order to secure any reliable data, a singular ignorance prevailing on the part of one proprietor or manager concerning the doings of his nearest neighbour or rival; and yet it may be said that the sugar industry is already one of the greatest supports of industrial Peru, and is destined to become a more important factor still in its welfare, and this in the immediate future.

It is interesting to note that while sugar-cane was not known in Peru at the time of the conquest by the Spaniards, the first plantation was laid out in the year 1570, the cane used for the purpose being brought to Lima from Mexico. It was in the beautiful and fertile valley of Huánuco that the first factory was established, and it is told by the historian and man of letters, Don Ricardo Palma, in his "Tradiciones



PORT OF CERRO AZUL; SHOWING PIER OF THE B.S. Co., LTD.



LAKE TITICA: STEAMER LEAVING GUAQUI (ON THE BOLIVIAN SIDE)
FOR PUNO (ON THE PERUVIAN SIDE).

to visit
ALBANY, N.Y.

Péruanas," that, finding his sugar could not compete with that of Mexico, the owner of the Huánuco factory resorted to a clever stratagem, which was to send to Mexico a ship loaded with Huánuco sugar. The Mexican producers swallowed the bait, for they supposed that to send their sugar to Peru was as much as to say send "Rosaries to Berberia," for the production must be abundant there and the price very low. From that day forward the Mexicans ceased to send sugar from Acapulco, and the sugar industry began to flourish in Peru.

In all probability, the first cane that was brought into Peru was from Jamaica, or some other of the West Indian Islands, as the class chiefly grown at the present time is known by the name of "Jamaica Cane." Among the earliest relics of the industry are two copper defecators, which were dug up on a sugar estate a few years ago, bearing the date of "1760." Close to the Capital of Lima there is a small compact estate, which has uninterruptedly produced cane for the past 170 years, and it is still considered to have the best soil of any of the estates in that locality.

The Republic exports its sugar to a number of markets, Liverpool taking about 60,000 tons and Chile about 40,000 tons, while the rest of the production is distributed between New York, San Francisco, Japan, and Australia. Sugar is generally sold aboard in Peruvian ports, and the prices are regulated by Liverpool quotations. Some markets purchase on polarization, but generally purchasers demand the rendiment. The Peruvian planter is well protected by his Government, which imposes a heavy tax on foreign sugar, while agricultural machinery is permitted to enter free of duty. On the other hand, the planter does not escape taxation scot-free, since there is a heavy tax

imposed upon white sugar, which is made and consumed in the country.

In all probability, the West Coast of Peru, which at present produces an annual output of 150,000 tons, could, with proper management, raise this to at least 300,000 tons and secondary outputs. In order to effect this, however, it would be necessary to have a complete rearrangement of the factories, the introduction of modern crushing-plant and labour-saving devices, better protection of the guano birds and animals, increase in the water-supply in some sections, and the further cultivation of lands by extensive irrigation. I have but little doubt that most, or all, of these features will be introduced eventually, since the prevailing spirit throughout the country is one of progress tempered with caution, for the modern Peruvian, like the ancient Greek, says: "*Litus ama: . . . altum alii teneant.*"

The Government has done, and is doing, much to foster the growth of the sugar industry, and among excellent provisions has established an Experimental Station at Santo Beatriz, where it occupies an area of some 3 hectares = $7\frac{1}{2}$ acres. Its primary object was the study of the different valleys of the Republic, and the conditions afforded by these for sugar-cane cultivation; the diseases; organizing experimental fields; and generally to do all and everything to improve the industry and its commercial exploitation. The station has some twenty-two varieties of foreign cane under cultivation, and the present Director, Señor Cesar Braggi, who took charge in 1909, is well satisfied with the amount of progress made. The station is now five years old, having been established under the auspices of Mr. Thomas F. Sedgwick, its director, and Señor Don José Balta, the then Minister of Agriculture, in 1906.

Inquiry among the various estate-owners why they

have hesitated for so many years to introduce modern machinery and equipment elicits the reply: the industry of sugar cultivation and manufacture has proved so profitable with the use of the old and tried appliances, that they have not deemed it necessary to make any outlay upon additional equipment. Upon further interrogation, I was informed that the factories are recovering 75 per cent. of the juice of the cane as against over 90 per cent., which is recovered in Cuba, Brazil, Hawaii, Java, and Louisiana. Thus 25 per cent. of the produce has been wasted or burnt through sheer ignorance or incompetence upon the part of the management; and when it is remembered that some £100,000 per annum has been thrown away in this manner, and that the necessary new equipment for the whole of the mills would probably not have exceeded £200,000, it can be appreciated how short-sighted has been the policy of the Peruvian manufacturers.

It is gratifying to know, however, that a gradual change is coming over present ideas and methods, and I can only repeat what I have said previously, but with additional emphasis—namely, that an excellent opportunity exists in Peru at the present time for British manufacturers of sugar machinery to extend their connections to this field, since in all probability, between now and the end of the next five years, there will be something like twenty to thirty new mills erected upon Peruvian plantations. If we omit the year 1905, which proved altogether an exceptional one, the price of sugar has not been as high in Peru as it is to-day for a long time, and it should be borne in mind that this increase in the selling figure—which, as I write, stands at £15 per ton—is not the outcome of any unusual or abnormal conditions, but the result of the increased demand, which, moreover, is more likely to augment than to diminish.

Before proceeding to point out the class of machinery which is best suitable to the factories to be found in Peru, it may be as well to give an outline of the plant which is now to be found commonly in use; and for this purpose three or four different factories may be selected at random. The first of these contains one three-roller mill, with cylinders of the 32×66 type, which type, as well as those of 32×78 and 34×84 , are found installed indiscriminately. The speed of the mills is 16 to 18 feet per minute, and there is no hydraulic process employed. The extract of juice over the weight of cane amounts to from 58 to 60, twelve men being employed to unload the cane at the conductor. Upon one other mill (the Santa Barbara) as many as twenty-one men are continually thus employed, and a daily wage of \$1 (2s.) per diem each. A handsome competence awaits the man who invents a practical automatic cane-feeder to the crushing mill. The mill grinds from 350 to 420 tons of cane per day, the millmen working from fifteen to twenty hours. The boilers are fed upon this particular estate with dry bagasse by hand, there being seven boilers, of which five are in use, but some mills—such as the Santa Barbara—have partly automatic bagasse feeders, necessitating only three men in all to feed eight boilers (in pairs).

Only one tubular boiler exists upon another mill, but it turns out from 35 to 40 tons of sugar per day. Yet a fourth factory is fitted with a three-roller mill with cylinders 34×84 , the speed of the mill being 15 feet per minute, and the motive power supplied by an engine of the walking-beam type. This particular mill grinds from 350 to 375 tons of cane per day, and the extract of juice over the weight of cane amounts to from 57 to 60. Double-bottom copper defecators are used, the capacity being 375 imperial gallons; there are two vacuum-pans—one copper and one iron—the

capacity of the larger pan being 18 tons, of second sugar grained in pan, third boiled to strings. There are two batteries of centrifugals—one being an overhead pulley bottom-discharge 30-inch type; the other, bottom pulley 40-inch type. The revolutions of centrifugals are 1,000 to 1,100 per minute. In this factory the steam plant has both the old type and tubular boilers.

In regard to another factory there is found one dry double-crushing plant, with three three-roller mills, cylinders 32×78 , each mill being propelled by a separate engine of the walking-beam type. The mills are fitted with hydraulic pressure apparatus, and a registering balance is used. About 500 tons of cane are ground daily, 33 tons per hour being the average, and the extraction amounts to 68.

It will be seen from the description given above that the equipments are singularly mixed as to types and age, and many are defective in completeness. Thus there exists an abundant opportunity for improving the equipment, and so add at least 20 per cent. to the output of the mills. It would not need a very eloquent salesman to impress this fact upon the minds of the principal estate owners and manufacturers in Peru; moreover, as they are at the present time in a very receptive and complacent mood, having enjoyed an abundant harvest in the last six months, with the probability of an even better six months to follow.

In regard to the prevailing system of manufacture, something may also be said; but it is naturally difficult to afford anything like a comprehensive description of the general methods in vogue, owing to the variety of types of machinery employed and the many deficiencies to which references have been made. The subjoined description of a typical mill may, however, afford

manufacturers of machinery at home some guidance as to the kind of installation which will shortly be called for, and it may well be worth the while of those among the more enterprising of the sugar-machinery manufacturers to communicate with proprietors of the estates, the addresses of some of whom will be found at the end of this chapter, offering them such type of installation as they may think most advisable.

I know that in suggesting to British manufacturers that they take this step, they will probably hesitate, doubting whether it is likely to be worth while to put themselves to so much trouble and expense, when, in some likelihood, no order may reward their enterprise. It is this very hesitation which has spelled so heavy a decline in the connection of the British manufacturer, not only in South and Central America, but throughout the world, a condition which is gradually resulting in his once-magnificent popularity among users of machinery of practically all types and descriptions falling away from him.

Manufacturers in other countries—such, for instance, as the United States—do not for a moment pause to consider the trumpery initial cost; nor do they fear the expense attendant of a few hours' trouble in the production of blue prints and drawings, or upon cablegrams when or wherever a good order is in prospect.

Considering that each installation of a new mill and its attendant equipment means the outlay by the purchaser of between 10,000 and 15,000 pounds sterling, it is surely worth the expenditure of a few pounds to participate in the mere chance of taking such an order? Certain it is that the British manufacturers will not have this promising field to themselves for very long, since already representatives of American and French makers of sugar machinery are on the

spot; and while the tendency of the Peruvians is to encourage in every possible way commercial relations with Great Britain, the feeling between the two nations being of the most friendly nature, it is unreasonable to suppose that hard-headed business men would fail to grasp at the first favourable offer which is made to them, no matter whence it emanates; while it can readily be understood that the man on the spot is likely to take the order away from the applicant who merely canvasses in the form of correspondence.

Upon a moderately well-equipped plant, the cane, after being weighed, is run in the cars alongside of the conductor, and there it is fed to it by hand. It then passes up to a dry double crushing-plant of two three-roller mills fitted with hydraulic pressure. The cylinders may be of the 32×66 , or 32×78 , or 34×84 type. Two men at the end of the conductor regulate the feed. The cane, after passing through the first set of three rolls, is run up to the second, passed through, and the bagasse carried off in a bagasse conductor. At the discharge of the second mill two labourers pick out the badly crushed pieces of cane, and throw them in to be recrushed. The juice from the first and second mills is then strained through a copper netting. The bagasse that does not pass the mesh is collected and passed through the mill again. The juices from the two mills are now led through pipes or cement gutters to a tank, or vat, where they mix.

The mills are propelled by separate engines. In some cases, as stated, these are still found of the walking-beam type, whereas a modern equipment should have one engine to three mills and a crusher, the special and most desirable fixture being the strength of the gudgeons for the rollers. The speed of the mills is about 22 feet per minute for the first mill, and 11 feet for the second.

The bagasse is run out from the conductor, when it is dumped into carts and taken out to dry, or is carried to the furnaces direct. The furnaces, fitted with step-ladder grating, are usually placed below the ground surface, and are fed by hand. Carts and wheelbarrows take the ashes to the dump, where they are left, or they are conveyed to the fields for use as a fertilizer. Both the old type and multitubular boilers are being used. The large factories have from eight to twelve boilers.

The juice from the wells is pumped up to the double-bottom copper defecators, of a capacity of 400 to 500 gallons (in some factories it is first run through a juice-heater). There it is limed to the neutral or slightly alkaline point, tempered dry lime—and not lime milk—being used by some managements. The amount of lime used for such defecators is from 8 to 10 pounds. After defecation, which requires from three-quarters of an hour to an hour and a quarter, the juice is drawn off, clarified, filtered, and run to the tank feeding the upright triple effect. (Some Peruvian factories do not clarify after defecation, while others do not filter the juices. No sand filters have been noticed.) The deposits are delivered to the filter-presses, and this filtered juice also goes to the triple-effect tank. The press-cake is removed from the press and thrown into the dump, where, upon some of the estates, it is used as a combustible. In most other countries which I have visited it is used only as a manure.

The clarified juices are pumped up to the upright triple-effect tank, and, after evaporation, are discharged at 24 to 30 Beaumé into the eliminators, which are fitted with copper serpentine coils. They are there worked up, skimmed, allowed to settle, and finally are drawn off to the tanks for feeding the vacuum-pans.

The vacuum-pans, often of copper, have a capacity of from ten to fifteen tons. The syrup is drawn into the pans, the grains are started, and the strike is boiled off, requiring from four to eight hours. The massecuite is discharged from the pan at about 94 Brix.

The massecuite is discharged into massecuite-cars, holding something over a ton. The cars are run out on rails, and are allowed to cool from ten to twenty-four hours; they are then weighed, hoisted by an elevator to the floor above, run up over the mixer, and there dumped by a hand-dumper. The massecuite passes through a grating into the reservoir, from where it is fed to the centrifugals. In the centrifugals (the overhead pulley of about 30-inch type) the massecuite is centrifugalled from four to ten minutes at about 1,000 revolutions a minute.

The sugar is discharged from below on to an apron or suitable conductor, on which it is carried to a cup-elevator, which takes it to the drying-room. The drying process consists in allowing the sugar to remain on the floor for a number of days, with occasional turnings. It is then shovelled into a shoot over the bagging-room. Bags are filled from below, weighed, sewed up, and loaded into cars for shipment, or are placed in the storing-room.

The molasses from the first sugar are collected from the centrifugals in a gutter back of the centrifugals which leads to a molasses-well, from where it is pumped to tanks fitted with steam-pipes. There it is clarified, and then run to the eliminators.

The Santa Barbara Factory, which is situated in the Cañete Valley, formerly belonged to Mr. Henry Swayne, and probably dates back to the early sixties. When acquired by the British Sugar Company, Limited, some ten years ago, more modern methods

were at once introduced, and the mill now turns out some 16,000 tons of sugar per annum. Always liberal in the matter of improving the plant, the company will soon probably own the most modern milling machinery in Peru, since, within the next few months, a new mill by Messrs. John McNeil and Company, Limited, of Govan, Scotland, will have been installed.

One of the features of primary importance in connection with the sugar industry of Peru is the very high percentage of sucrose contained in the canes, and the very large proportion of which finds its way to the furnaces. Concerns in other parts of the world having canes with sucrose contents of about 13 per cent., and working only four months a year, have been forced, in the struggle which is continually going on for existence, to adopt eleven and fourteen-roller plants; but Peru, more fortunately situated, has continued to burn thousands of pounds' worth of sugar which might have been saved, and has still made a profit.

The average extraction of the total sucrose in the cane probably does not exceed, in Peru, 75 per cent. of the sucrose contained in the cane, and, in fact, in the more poorly equipped factories, it is doubtful if even this figure is reached. With a modern crushing-plant, having a crusher in front and a nine-roller mill, the extraction, as above pointed out, should certainly exceed 90 per cent. of sucrose in the cane. There is evidently a wide field for sugar machinery manufacturers in Peru.

The canes of Peru are exceptionally rich in sucrose, as, owing to the absence of rainfall, the planter is able to regulate the growth and richness of his canes almost to a nicety. Fifteen per cent. of sucrose in canes is given by some authorities as the average figure, but



IN THE CUZCO VALLEY: SOUTHERN RAILWAY LINE (CUZCO BRANCH).



SICUANI: (NORTHERN PART) ON THE CUZCO EXTENSION OF THE SOUTHERN RAILWAY.

16 per cent. and 17 per cent. are not unknown. The climatic conditions of Peru also enable a far larger crop to be reaped with quite a small factory, since reaping can be carried on throughout the twelve months, whereas in other countries the reaping season cannot be depended upon for more than three or four months in the year. This means much less capital has to be invested in sugar machinery, and that there is a consequent reduction of staff and in the amount upon fixed expenditure. Yields of forty, fifty, and sixty tons of cane per acre are not infrequent, and many factories claim that they can put sugar free on board under £6 per ton.

The sugar crop for 1910 was the largest ever harvested in the Republic. Some fifty different plantations produced a total of 172,000 tons, or an increase of 15,000 tons compared with 1909, when the figures were 157,759 tons. The exports during the past five years have been: 1905, 134,234 tons; 1906, 136,729; 1907, 110,615; 1908, 124,891; 1909, 125,351. For the first six months of 1910 the exports amounted to 57,000, or at the rate of 114,000, but the "fatter" half of the year had yet to come. In actual value Peru exported sugar in 1907 worth £827,298, for 110,615 tons; and in 1909, £1,159,972, for 125,351 tons.

The home consumption may be put as follows: 1905, 27,506 tons; 1906, 32,659; 1907, 30,578; 1908, 32,402; 1909, 32,408; 1910, 30,000.

The following is a list of prominent sugar estates situated along the coast of Peru:

Shipping Port.	Factories and Estates.
Eten	Tuman, Cayalti, Pomalca, Patapo, Tulape, Pucala, and Almendral.

TUMAN.—Good double-crushing machinery; mill rollers 34 inches diameter; modern evaporating plant

and vacuum-pan; battery of Babcock and Wilcox boilers; centrifugal capacity somewhat short. This estate belongs to the family of Señor Pardo, the late President of Peru.

CAYALTI.—This factory at present has only a single crushing-plant, and the owners do not extract more than 60 per cent. of juice on weight of cane; they have also to spread the bagasse to dry before burning in furnaces of boilers. The mill is by Fawcett, Preston and Co., Limited, of Liverpool. A new set of Babcock and Wilcox boilers is in course of erection, and it is proposed to put down a treble crushing-plant in the near future. There is a distillery for utilizing the exhausted molasses.

POMALCA.—Has a double-crushing plant, with an old mill by Manlove, Alliot and Co., and a modern three-roller mill, about 34 inches diameter rollers, by John McNeil and Co., N.B. A new battery of Babcock and Wilcox boilers has been installed, and the factory is otherwise well supplied with machinery.

PATAPO.—Here a new modern crushing-plant has been put in recently. Three mills, the two last by John McNeil and Co., driven by one engine. The factory is otherwise fairly well supplied with machinery. Triple-effect evaporator by McCune, Harvey and Co.; two small vacuum-pans. There is a distillery in connection with the factory, which it is proposed to enlarge shortly. This estate belongs to a company having its headquarters in Chile, and is managed by an Englishman—Mr. Biggs.

PUCALA.—This estate is, at present, putting in an eight-roller mill and sundry new machinery.

Shipping Port.

Salaverry

Factories and Estates.

... Roma, Casa Grande, Sausal, San Antonio,
Chicamita, Larédo, Cartavio, Nepen,
Pampas, La Vinita, Chicquitoi, Chiclin.

CHICQUITOI, CHICLIN, and ROMA.—These estates belong practically to one company, under a principal proprietor, Señor Largo. Together they form, I believe, the largest area under one interest in Peru. A railway

connects the estates and the port of Hunchaca, where the sugar is shipped.

CHICQUITOI.—The factory is fairly well equipped, I am told. I did not have time to go through it.

CHICLIN.—This estate has no factory, and the cane is crushed at Chicquitoi.

ROMA.—The machinery here is worn and out of date. It consists of a single crushing three-roller mill, 32-inch diameter rollers, copper triple-effect evaporator, and vacuum-pan; under-driven centrifugals. The whole driven by an old battery of Lancashire boilers. Most of the machinery is French, or by Manlove, Alliott and Co., Limited. I understand that the above estates are at present endeavouring to raise capital in order to equip the factories with modern machinery. The buildings and offices are very imposing. Cultivation appears fair.

CASA GRANDE.—This estate has a well-equipped factory. It has three mills, 32-inch diameter rollers. The first mill is new, by John McNeil and Co. The triple-effect evaporator and vacuum-pan are of copper and are old; made by Fawcett, Preston and Co., Limited. Six centrifugals, Weston's type (American). The boilers are Lancashire, and mechanically fed with bagasse, dried by hot air. It is claimed that the boilers only require 50 per cent. of bagasse, and that the mills crush fifty tons of cane per hour. It is intended to install a battery of Babcock and Wilcox boilers shortly. There is a distillery in connection with this factory.

CARTAVIO.—I was unable to visit this estate, as the bridges were down, owing to floods. I have heard, however, that this factory is well equipped. It is managed by two Scotsmen from Demerara.

SAUSAL.—Is situated at the head of the valley. At present the factory is poorly supplied with machinery. One turbine-driven three-roller mill, 32 inches by 72 inches (Fawcett and Preston, 1871). Triple-effect evaporators, McCune, Harvey and Co., and vacuum-pan; Lancashire boilers. Bagasse has to be spread to

dry. It is at present proposed to increase plant to treble crushing capacity and install new evaporator. This factory is kept in perfect and clean condition, and appears to be very well organized.

LARÉDO.—This is a well-equipped factory. The cane is fed to conductor by means of a crane, which lifts the cane from cars and places it on an inclined plate at side of conductor, whence it is fed to conductor by, say, four or five men. There are two three-roller mills, 30-inch diameter rollers, triple-effect evaporators, and large modern vacuum-pan by John McNeil and Co. It is proposed to install a new treble crushing-plant mill, 36 inches by 78 inches. Cultivation seems good.

In the Chicama Valley the supply of water for irrigation is somewhat short at certain seasons, and causes friction between the estates. The Government has had an American expert investigating the sources of supply for two years, with a view to increasing them.

All of the above estates seem to be fairly well equipped with railways and rolling-stock, and in all cases have railway communication from factory to coast. In cultivation, the use of steam-ploughs is fairly general.

Other sugar estates of some consequence are :

Shipping Port.	Factories and Estates.
Pacasmayo	Lurifico.
Chimbote	Tambo Real, Vinzos, and Suchiman.
Samanco	San Jacinto, San José.
Supe	Huayto Paramonga, San Nicolás, and Carretería.
Huacho	Andahuasi and El Ingénio.
Chancay	Palpa and Huando.
Ancón	Caudivilla, Chuquitanta, Infántas, Huachipa, Nervería, Naranjál, Chacra-Cerro, and Chacra-Grande.
Cerro Azul	Araná.
Callao	Monte Rico, La Molina, La Estrella, Caraponga, San Juan, La Villa.
Tambo de Mora	San José de Chinchá, Laran.
Pisco	Caucató.
Chala	Chocavento.
Arica	Tomasiri.

CHAPTER XIII

Agriculture (*continued*)—Climate and soil—Sugar-cane culture—Guano fertilization—Deposits—Guano characteristics—Suitable soil—Insect pests—Coast cultivation—Time for cutting—The average yield—Experiments with nitrate manure—Machinery—Antiquated plants and equipments—Opportunities for manufacturers of sugar machinery—Typical installation described—Handling the bagasse and massecuite.

THE whole coast of Peru is remarkable for the smallness of the rainfall. In some few sections there are occasionally copious periodic rains; the principal sugar-cane-producing valleys, however, depend entirely upon irrigation for their water-supply. Considering the extremely small amount of rainfall, one would naturally expect to find a low relative humidity, but, as a matter of fact, along the immediate coast it registers moderately high—from 72° to 84° . Nevertheless, the Peruvians consider that they possess a "dry climate." The effect certainly is not that of a humid atmosphere, neither is it of a steamy or an enervating nature. The dull grey skies, which last for weeks together at Lima and its immediate neighbourhood, are very depressing to the new-comer; but they are scarcely regarded by the inhabitants. It is decidedly interesting to note in connection with this atmosphere that one encounters, and especially on the coast, the remains of numerous early inhabitants naturally mummified, the cloth in which their bodies were buried being found still in a state of excellent preservation.

Irrigation is carried on in Peru under very favourable circumstances, especially in connection

with the cane-fields, since there is an abundance of water to be obtained, and nothing has to be paid for it; while the first cost of irrigating ditches is very small, and the maintenance equally so. The underground drainage in most of the valleys, where sugar is grown, is excellent and complete; in some places, from the cliffs bordering the sea, little rivulets may be seen emptying their waters into the ocean—seepage-waters from the valleys above. These valleys slope gently toward the sea, and appear almost like a level plain. They also slope slightly toward the river-bed. The underground drainage *strata* varies in depth; in some of the lower lands seepage-water is found within a few feet of the surface.

Flooding and drainage form the one thorough and permanent method of reclamation, if properly carried out. As nearly all the coast-line of Peru consists of lands deeply impregnated with salts and alkali, irrigation and flooding form the best possible treatment for them. The process adopted is first to reclaim and then to irrigate, according to the usual methods; but it often happens that there is not a sufficient amount of water for thorough washing, or that the young cane already growing would not bear the addition of so much water. The process of irrigation upon some of the estates which I visited showed that the water was run around and across the fields in ditches placed at mathematical distances, and only very occasionally over them. On other fields, however, it was found that these were entirely flooded and allowed to absorb the matter gradually. One expert stated to me that if irrigation water has passed over a field badly infected with alkali, the same water should not be used for other fields; and he suggested the throwing of a layer of fine dirt over the irrigated furrow before the water has completely evaporated. This hinders evapora-

tion, preventing the alkali from coming to the surface. It is to be feared, however, that this practice, however excellent it might prove, would not be practicable in many districts of Peru, owing to the large amount of labour which it would require; while, on the other hand, the same effect would be produced when the cane was high enough for the leaves to shade the ground. The success of irrigation in Peru, as in Egypt, has been undoubted; and, indeed, but for that, cane-growing there would never have attained the dimensions of prosperity which it possesses to-day.

Both the soil and the climate of Peru demand a considerable amount of fertilization for the cane, by artificial means; and, fortunately for the country, the resources are found immediately at hand. In some sections of the Republic the growth of cane is gradual, requiring rather a longer time to mature than in other countries, although there are three or four months in the year when the cane grows vigorously, quite out of proportion, indeed, to the gradual growth of the other months. Provided the cane can be kept growing gradually after this period, and that the change from the rank of the gradual growth be not too sudden, this vigorous advance is found advantageous. It is supposed that this change is not occasioned so much by any marked lowering of temperature as by the shorter days with consequently less sun, together with the damp mists, which spread, like a chilling blanket, over the lower portion of the valleys, rolling in direct from the sea. Inasmuch as the soils are usually deep, containing a large amount of lime-water and sodium salts, fertilizers are easily decomposed, and slow-acting fertilizers undergo a more rapid decomposition in these soils than in many others.

The immense guano deposits which are found along the Peruvian coast form the best kind of fertilizer that

can be used. Some of the nitrogen contained in these guanos is in the form of free ammonia and other easily-decomposable compounds. This ammonia is so strong at times, that the fumes given off from guano, stowed in the holds of a ship, are almost insufferable. The preservation of so much of the nitrogen is due to the absence of rains, that would otherwise leach it out. The dry, sheltered spots where the guano is found have afforded almost perfect storehouses, where decomposition can proceed and convert the fertilizing elements in a reasonably available form, and yet conserve them.

After using guano with considerable advantage upon its own cane-fields, Peru commenced to export it in the year 1845, both Europe and the United States becoming prompt and keen customers. Owing to the unfortunate loss of its principal guano deposits as one out of the many serious results of its war with Chile, between 1879 and 1884, Peru had been shorn of one of its most prolific sources of natural fertilization; but it still possesses a number of islands, large and small, in the sheltered coves and nooks of which sea-birds and seals make their homes. At one time these nervous and easily scared denizens took flight, and practically deserted the Peruvian coast; but, quite unexpectedly, they came back one happy day, and have remained constant to their habitations since. The Government have now issued new regulations for preventing disturbance of the birds during the breeding season, and inspectors have been distributed along the coast to see that these regulations are observed. The close season is from October to March inclusive.

The guanos of Peru consist of three different classes: those containing a high percentage of phosphoric acid and comparatively low nitrogen; those containing a fair percentage of phosphoric acid and high nitrogen; and those containing a fair amount of each. It is the

first of these three classes which is exported in large quantities, the second class being found only in small amounts. The third class is the one used by most of the sugar estates, its principal value consisting in its nitrogen, much of the Peruvian soil being already well supplied with available phosphoric acid.

The Peruvian Corporation derived a net income of £103,015 for the year 1909-10 from guano sales, as against £140,850 for the previous twelve months. There were 23,000 tons shipped less, but the average quality of the guano of the sale prices was maintained. Freights ruled about 1s. 9d. per ton over those of the year 1908-09. It is believed that the present year will be a very good one for the trade.

The guano which is exported is sold in accordance with an analysis, which takes into consideration the moisture, the sand, the silica, the nitrogen, and the phosphoric acid. Several laboratories have been established upon the principal guano islands, and here the stuff is carefully analyzed. If specimens are not up to the standard, the quantities are rejected, and are then used as reducers for guano of extremely high grade. While a good deal of the exported guano is not sold under any agreement as to special quality, some of the estates which possess laboratories insist upon a guano of a more or less certain analysis. The industry of guano-collecting has been so long established, and the collectors are usually so experienced in the different classes and characters of the composition, that they are readily enabled to distinguish the different qualities without the necessity of conducting a chemical analysis. Small vessels proceed from island to island gathering guano here and there, until the cargo is deemed sufficiently large. Some estates collect and use as much as 2,500 tons per annum.

During last year (1910) Peruvian agriculturalists

used nearly 25,000 tons of guano for their various cultivations. As has already been shown, the Peruvian cane-fields are singularly fortunate in possessing naturally rich and adaptable soils, as well as an abundance of water supplied by irrigation, a congenial climate, and a present sufficiency of labour. The only possible drawback to success which could be encountered, and which has not been referred to, is the existence of pests, and here, it may be said, the country is equally happily situated. Where they are found they are easily exterminated, and experience shows that a cane-field once cleared of an insect pest is seldom again visited. An insect, known as the borer, is occasionally found, while the canes are sometimes attacked by other insects. In rare instances a species of fungus has been discovered upon some of the canes that were grown on wet soil, and had fallen. As a general rule, the natural conditions of the country are not favourable to the increase of pests, and a very small amount of care and attention will suffice to keep the fields entirely free from any dangers of this kind.

Many of the sugar estates in Peru are of large dimensions, extending to as much as fifteen or twenty miles square, and producing between 15,000 and 25,000 tons of sugar each. The cane seems to grow in this country with altogether unexampled facility, and anything from 50 to 60 tons per acre fields of cane is a result which is regarded as by no means unusually high.

The cultivation of sugar-cane has extended along the entire coast of Peru. In the Andean regions the cane is cultivated in the deep valleys which cross the tablelands, and there are many sugar plantations to be found in the region of the *montaña*; but it is on the coast, where I spent most of my time visiting the estates, that they have reached their greatest development.

In all of this zone the cane is cut and ground from eighteen to twenty-two months after being planted, and it usually produces from two to three crops from one planting. To-day, however, the fields may be seen littered here and there with hundreds of bags of guano, which are brought from the adjacent Guano Islands ; while in March, 1910, there arrived the first shipment of Chilian nitrate, which is hereafter to be employed as a manuring agent. The real value of the experiment will be awaited with considerable interest, and in all probability, as a result there will be an increased tonnage per acre, and the growth considerably accelerated for the present year (1911-12).

The cane, when cultivated, contains more than 14 per cent. of sugar, and yields an average of from 7,000 to 9,000 kilogrammes of sugar to each hectare, and 16 per cent. and 17 per cent. of sucrose, as already stated, is by no means exceptional. It is undeniable that such returns have never been surpassed by any other sugar-producing country in the world ; but large as it is, it can be increased by an improved system of cultivation of the cane, and by the employment of more powerful and perfected machinery.

In conversation with one of the most experienced and expert sugar manufacturers, who, by-the-bye, gained his experience in the sugar-producing districts of the Island of Trinidad, he said that " Never, in all his life, had he come across such a wonderfully adaptable and productive soil for cane as exists in Peru, and especially on the coast." Although a cautious and canny Scot, he permitted himself to wax enthusiastic upon the future of the particular district where is situated the estate of which he is the manager, and this estate hitherto has considered itself very fortunate by being able to secure 75 to 80 per cent. of sucrose over weight of cane. My informant, however, stated that this year, and in all

future years, so far as human judgment and effort can be depended upon, the return will not be less than 90 per cent., while the working expenses will be reduced still further, so as to make the net proceeds more valuable.

As a preliminary, a new mill equipment had been ordered, to cost £12,000, and the entire cost of this will be in all probability saved and paid for by the increase in the first year's output. The estate is now fitted with twenty-two miles of tramway line and equipment, and this length is to be further extended to over thirty miles, and a much heavier track introduced. There can be no question that as soon as the neighbouring estate-owners become aware of the economy in working which will be effected by the introduction of new machinery and improvements in the transportation facilities, they will follow suit; so that a new era of prosperity, both for the sugar manufacturer and the makers of modern machinery, is opening up in Peru—a prosperity in which the British manufacturer might easily participate if he displayed some little enterprise and energy.

Naturally the ability of cane-mills to express juice depends to a great extent upon the class of cane being dealt with, and this in Peru, as in other countries, varies considerably not only in size, but in quality, from time to time upon the same estate. It is therefore necessary to make careful inquiries and even tests before being able to gauge the nature of the machinery best adapted to the requirements of any particular estate. Experience shows that rollers of small diameter usually break up and disintegrate the cane to a much greater extent than wider rollers, and yet the actual squeeze administered and its effects are not always productive of the best results.

Broadly speaking, the fast-running mills afford the

best results, although the appearance of the bagasse does not, perhaps, lead to this conclusion; but, all other things being equal, rollers of large diameter seem to give improved results on account of their great surface speed.

Of the many important sugar estates which exist—and there are between forty and fifty of these—it is safe to say that not one possesses a complete and modern mill. From time to time new additions to the existing machinery are introduced—here a new defecator, there some new pans; now and again the type of boiler is changed from the old to the tubular, so that many of the mills present an accumulation of types of various kinds of equipment. Already one of the more go-ahead factories has installed dry double-crushers, and although the mills are, as previously stated, usually three-rollers of about the 32×66 , 32×78 , or 34×84 type, a new class of mill has recently been introduced, such, for instance, as that ordered for the British Sugar Company's factory, which is one of the eleven-roller type.

The bagasse is still, with very few exceptions, carried to the furnaces in carts and fed to them by hand. A few multi-tubular boilers have been introduced, while the juice from the mills is more often run up directly to the defecator. The upright triple effect seems to be the most suitable. There are a number of copper vacuum pans still in use, and doing excellent work.

Massecuite is handled in different ways in Peru, and not as I have witnessed in India, Egypt, Trinidad, and Barbadoes, for instance, where it is run into large tanks and allowed in some factories to crystallize, afterwards being shovelled into boxes by hand, and emptied into the centrifugals; while, in other factories, it is run into massecuite cars, and, after being allowed to cool, is dumped into a reservoir from which the centrifugals are charged.

The advance in the sugar export industry can best be understood by a glance at the accompanying figures: For the year 1907, an amount of 110,615 tons = £P827,298; for 1908, 124,891 tons = £P1,048,231; 1909, 125,350 tons = £P1,159,897, including all classes—crystallized, granulated, “mascabada” (inferior quality), and crude. In 1910, the total amount reached 130,000 tons, in addition to the 30,000 consumed locally.

CHAPTER XIV

Agriculture (*continued*) — Cotton — Classes cultivated — Comparison between Peruvian and South American—Statistics, 1903 - 1909—Cotton-seed oil — Wool-growing industry — Hides — Coca-plant — Cocaina—Cocoa—Rice cultivation and imports—Tobacco—Wheat cultivation—Samples tested—Barley—Maize—Rubber—Ignorant method of collecting — Exports for 1902 - 1909 — Government encouragement of cultivation.

NEXT to sugar, cotton undoubtedly occupies the second place in importance in Peru's agricultural exports. Its cultivation dates from time immemorial, as is proved by the many specimens of cotton cloths which have been, and are still being, found in the tombs of the earlier inhabitants of the country. In common with sugar, cotton possesses many natural facilities and advantages in Peru which are unknown in other countries, not excepting Egypt, West Africa, and the United States. The classes cultivated are various, and may be enumerated as follows :

Peruvian cotton (*Gossypium Peruvianum*).

Upland cotton (*G. herbaceum*).

Sea Island and Mitafifi cotton (*G. Barbadense*).

Chanchamayo.

Peruvian cotton, or *G. Peruvianum*, is grown on an extensive scale, being found chiefly in the valleys of Piura. The plant grows to a considerable height—namely, from 9 to 15 feet—and its life is about six years, after which period the crops begin to diminish, and the capsule, or boll, to contain more seed than cotton. Although the cotton-fields in Peru are irrigated in a

similar manner to the cane-fields, the *G. Peruvianum* can dispense with water to a very great extent, and upon many of the good lands one watering is sufficient to insure a heavy crop.

The Upland, or Egyptian, cotton, on the other hand, gives a better result if frequently watered; the same may be said with regard to the Chanchamayo class. As already stated, the department of Piura is the principal centre of the cultivation of these classes of cotton, the districts of Catacaos, Sechura, and La Chira being those in which the best kinds are produced. Most of these lands have been formed apparently by the deposits from the rivers, and undoubtedly at one time they were covered with forests of the Algarrobas, or horney-mesquite, trees (*Prosopis dulcis*). The cotton-plant is sown in small holes dug from 15 to 21 feet apart. The ground is seldom touched by a plough, and is watered by ditches upon the usual irrigation principle. I have observed that those fields which belong to the native peasantry—and a great number of such small holdings exist—are allowed to fall into a very dirty and weedy condition; whereas those which are owned by foreign corporations or the wealthier class of Peruvians are usually kept well cleaned and carefully trimmed. In some cases the spaces which are left free between the cotton-plants are used for the growing of various vegetables. The first crop, generally a small one, is obtained after the first eighteen months; but year by year thereafter they increase until the sixth is attained, when the production commences to fall off.

The fibre of Peruvian cotton is long, and frequently exceeds 35 millimetres, but it is rough in texture, being known upon the London and Liverpool markets as Full Rough Peruvian. The average annual amount of this class, as well as of the Moderate Rough, is between 1,700 and 1,750 tons of ginned and cleaned

cotton. It obtains a far higher price than the Egyptian cotton, on occasions as much as 30 per cent. more for the Full Rough, and 15 per cent. for the Moderate Rough. Great Britain and the United States are the principal purchasers.

The Sea Island and Mitafifi cottons come next in value, but they are not grown so largely as the first-named on account of their requiring special and rather expensive machinery for their ginning. The cultivation is therefore limited to certain valleys, which are those of Pátivilca, Supe, and Huacho. The Upland, or Egyptian cotton, has become quite acclimatized in all the valleys along the coast of Peru. It rarely reaches in height more than $4\frac{1}{2}$ feet, and its life may be given as of two years, although in some districts it is prolonged to three. The Chanchamayo variety is a spontaneous product of the *montaña*, or highland, regions, but its quality is not very high, and the exports are of an infinitesimally small character.

One of the most convincing evidences of the progress of the cotton factories is afforded by the rapid growth in the home consumption, which has multiplied ten times while the exportation was trebling. The value of the 1909 crop of the Cañete Valley was £76,332; or if the by-products be included, such as the cotton-seed, oil, etc., the total passed £90,000. If the available land now under irrigation in this valley which is suited to the purpose were also devoted to cotton-growing, the production would probably amount to three times as much as in the last year, for which figures have been gathered, while a wider use of concentrated fertilizers, such as I have indicated, and more particularly those with potash content, would not only increase the production per hectare, but further improve the quality of the fibre. The demand for Peruvian cotton always exceeds the supply, causing the very satisfactory situa-

tion which exists in respect to prices. Certain varieties cannot be obtained from other sources, notably those which so closely resemble wool as to be detected only by chemical analysis. Some interesting data are available in regard to the production of Cañete, from which the following table is condensed, the amounts being given in kilogrammes :

	Exported.	Consumed.	Totals.
1900	510,081	111,179	621,260
1903	804,648	403,335	1,207,983
1906	1,108,860	468,627	1,577,489
1909	1,498,532	1,045,900	2,544,432

For 1909, the figures representing cotton exported were 21,305 tons = £P1,206,988.

The exceptionally favourable conditions which prevailed last year (1910) have led to the very reasonable conclusion that the figures for 1911 will reach, and may even exceed, 25,000 metric tons of cotton exported from the Republic.

As will have been seen, the total amount of cotton exported (exclusive of by-products) from Peru for 1909 was 21,305 tons, representing a value of £P1,206,988. This consisted of Upland, 13,715 tons = £P790,592; Sea Island, 535 tons = £P36,452; and Native, 7,055 tons = £P399,644. The Republic's best customer was England, which took 5,116 tons of native cotton, against 1,093 by the United States, 415 by Chile, 184 by France, 129 by Germany, and 102 by Panamá. England also took 10,498 tons of Upland and 500 tons of Sea Island. The quantities taken by other countries were very small comparatively.

Much of the prosperity of the cotton industry is due to the enterprise of the Government, under the auspices of the Department of Fomento. In 1909 the

Experimental Station was established, and it now occupies a portion of the grounds of the Government School of Agriculture, at Santa Beatriz, situated near Lima, where 16 acres of its extensive area are devoted exclusively to the cultivation of varieties of plants, classification and selection of seeds, improvements of species, and to trials of cotton-machinery.

With a view to experimenting upon yet a larger scale in different manners and methods of cultivation, the Experimental Station for cotton has established, at Chancay, some 90 acres of experimental fields in which the cotton-growers of that neighbourhood are participating. The station is under the direction of Señor Don Gerardo Klinge, who has made a long and careful study in Peru of the whole industry, while he has also travelled considerably in other cotton-producing States—in fact, as he mentioned to me, in most of the countries of the world. Señor Klinge entertained very optimistic ideas of the future of the cotton industry in Peru, and I am of opinion that such optimism is justified.

The cost of producing the native cotton is estimated at but \$0.5½ per kilometre, while from 750 to 770 kilometres of cotton per hectare (= 2.4711 acres) with a yield of 35 per cent. of lint may be depended upon.

The manufacture of cotton-seed oil has lately attained some dimensions, which is the natural result of the increased area in cotton cultivation. Some six or eight plants already exist for the treatment of cotton-seed, and others are in contemplation. Several of these factories are to be found in the neighbourhood of Lima, while a modern central factory, known as the Esquivel, situated in the Valley of Chancay, is probably the largest and most perfectly equipped. Another factory which is worthy of mention is that located at Cerro Azul, and belonging to the President of the Republic, Don

Augusto B. Legúia. It is fitted with both British and American machinery. Messrs. Rose, Downs, and Thompson, Limited, of Hull, have supplied the oil-presses, and the Brown Cotton Gin Company, of New London, Connecticut, U.S.A., are responsible for the ginning-plant. At this factory, also a common quality of soap, known as "Starita," is turned out; but for what purposes it is used I am unable to say. The oil extracted from the cotton-seed is used chiefly for lighting purposes in the mining districts, the lees being employed for the manufacture of soap, while from the residue, pressed into the form of an oily mass, the oil-cakes, which are chiefly exported to the United Kingdom, are made.

Cotton-seed was exported to the amount of 7,999 tons, England again taking 80 per cent. of the amount—namely, 6,107 tons.

The advance of the cotton industry can be traced from the subjoined figures: Amount exported (including both the product and by-product) in 1907 = 24,526 tons, of a value of £P516,256; 1908 = 31,163 tons, of a value of £P844,369; 1909 = 33,707 tons, of a value of £P1,245,599.

The Government has secured from the United States the services of Mr. C. H. E. Townsend, a specialist in plant diseases, to combat the lice, which do much damage to cotton in the department of Piura. He is experimenting with cultures of an insect from Italy, which he used there successfully in similar cases.

The total exportation of cotton in 1909 was, as stated, 21,305 tons, and represented a value of £1,206,988. The annual consumption of the several existing factories turning out cotton goods may be calculated at 2,500,000 kilogrammes of ginned cotton fibre. The total production, therefore, would stand at 23,870,256 kilogrammes of fibre for the year. I would draw attention to the



TYPICAL MOUNTAIN SCENERY : NEAR MOUNT VILCAÑOTA (CENTRAL CORDILLERAS) ON THE CUZCO EXTENSION OF THE SOUTHERN RAILWAY.

following comparative figures in order to demonstrate the considerable advance which has been made in the cultivation of cotton and the sale of by-products :

	Kilogrammes (1903).	Kilogrammes (1909).
Full Rough and Moderate Rough	2,473,077 = £103,869	7,041,444 = £379,644
Smooth Peruvian	4,906,686 = £176,640	13,793,511 = £790,592
Sea Island cotton	271,596 = £15,209	535,301 = £36,452

Taking as a safe average of yield 588·07 pounds per hectare (= 2·471 acres) for the Rough Peruvian, 1,038 pounds of fibre per hectare for Sea Island, and 1,211 pounds of Upland cotton, the result of 56,313 hectares, or 140,782 acres, is obtained for the area planted. The preparation of this vast extent of territory, the cultivation and harvesting, afford occupation to some 30,000 labourers, who live exclusively upon this industry. On the coast of Peru, I found that the daily wage of the labourer varies from 30 cents to 60 cents (say from 1s. 3d. to 2s. 6d.). In the United States, if I remember correctly, the rates amount to \$1.25 to \$1.50 (say from 5s. to 6s.). The harvesting expenses are more or less the same. In the United States the worker can, and usually does, earn from 40 cents. to \$1.00 (say from 1s. 9d. to 4s.) per 100 pounds, the usual rate paid being about 50 cents (2s.), and this sum also is earned upon many of the coastal cotton-fields in Peru. In both countries the interest upon capital is about the same, being considered as equal to 6 per cent. Peru, as a fact, gives a yield considerably greater than any other cotton-growing country and this is expanding appreciably year by year.

Although sheep-rearing had long been an industry pursued with more or less thoroughness in South America, especially in the Chilian section known as

Magallanes, for many years, it was only some years later that the first serious attempt at sheep-raising was made in Peru.

In the year 1876 a few sheep were taken to Chile from the Falkland Islands, by Señor Don Diégo Dublé Almida, and these having proved far more profitable than was anticipated, repeated consignments from the same place continued to be received in the Republic. To-day, while sheep-raising has an undoubted future in South America, it can be followed only to a limited extent in Peru; since there are many obstacles which have to be encountered, some of which cannot be easily overcome, such, for instance, as combating with the various diseases to which sheep are subject in a country of many physical peculiarities.

The principal districts in which sheep-farming is carried on are: Cajamarca, Junín, Ayacucho, Cañas, La Libertad, Arequipa, Puno, Acomaya, and Cuzco. Upon the extensive grassy meads to be met with in these parts, large herds of cattle and sheep are seen grazing the pasture of various wild grasses, including the *bromos*, *grana*, *lapa*, *ichin*, these being found especially suitable to the particular breeds which are raised. Sheep in Peru are bred principally for their wool, and are divided into two classes—the native and the cross-breed. The former are of small stature, somewhat irregular in form, and long-legged, such as one would expect to find in animals which have to travel long distances. The fleece is rough and scanty, but it could, no doubt, by the adoption of careful methods, be improved. The half-breed are of a medium height, and give a greater supply of wool than the native. These animals are the result of the crossing of the Puna or Hill sheep with the imported Meriño.

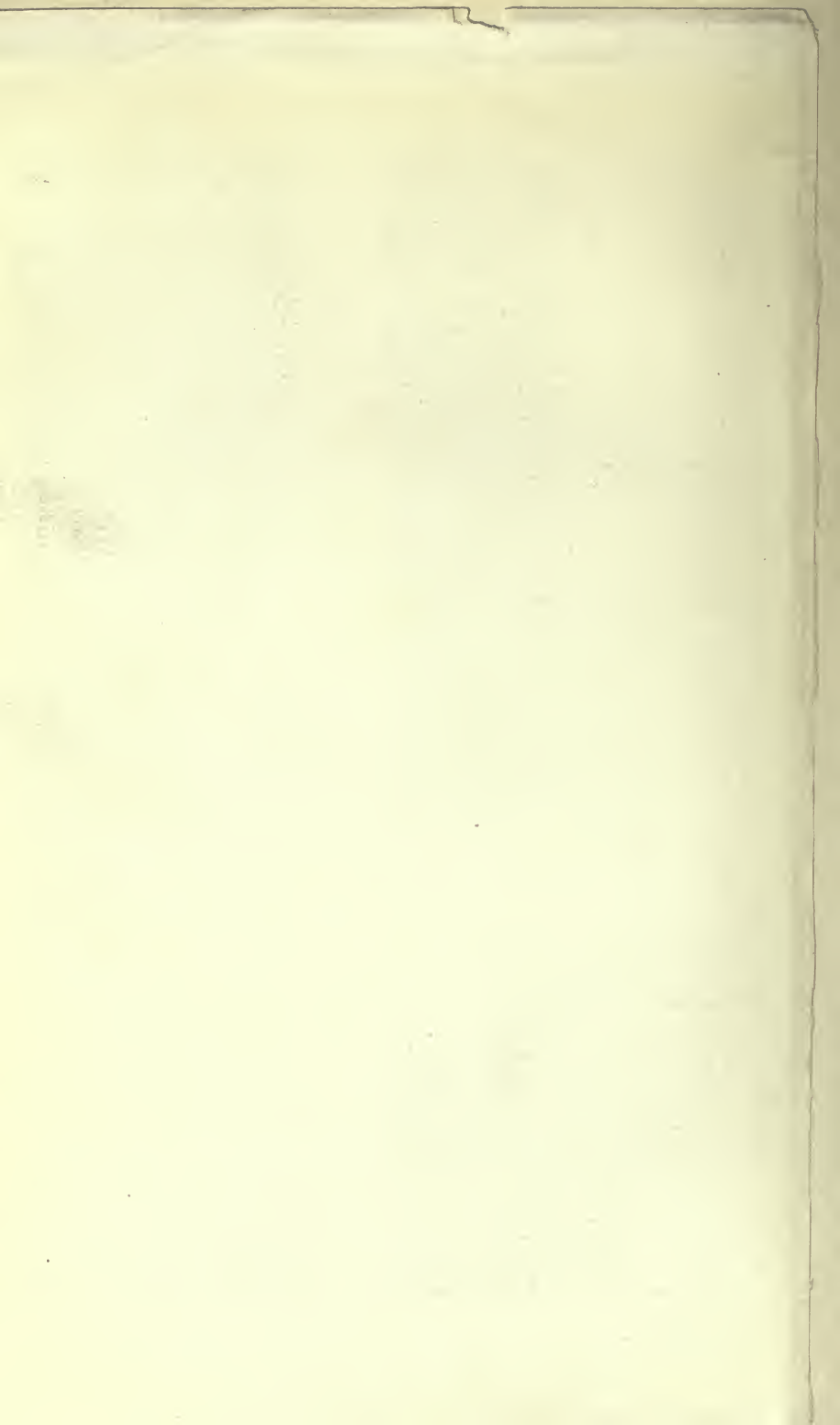
Shearing takes place once a year, and produces an average of from 2 to 3 pounds of wool per head, accord-



CITY OF AREQUIPA AND "MISTI" VOLCANO, FROM CHARCHANI.



GLACIER ON MOUNT VILCAÑOTA : (ALPACAS IN THE FOREGROUND).



ing to the size of the animal and the character of the pasture upon which it has been fed. Upon one estate in Atocsayco the yield was from 2 to 6½ pounds per head; but upon some other estates the average production was only from 2 to 3 pounds per head. At the first-named place the sheep are dipped regularly as a protection against scab, and to eliminate the numerous pests to which the animals are subject; but I believe that this is the only ranch in Peru where dipping is regularly practised. Shearing takes place in the months of November and December, lambing occurring in the previous September and October.

The wool industry has maintained a somewhat uneven condition during the past three years, as may be seen from the following comparative figures: 1907, 3,805 tons = £P428,013; 1908, 3,058 tons = £P297,277; 1909, 3,798 tons = £P394,346. The classes included are, alpaca, llama, washed lamb's wool, unwashed lamb's wool, and vicuña.

New energy is being displayed in connection with the wool industry, and the country, where suitable for sheep-breeding, undoubtedly could be made trebly as profitable as it is. At the present time the wool product does not represent a more extensive annual value than £500,000, or, in quantity, a larger amount than from 400,000 to 500,000 tons. The wool-bearing animals of Peru are sheep, alpacas, llamas and vicuñas, while within the past year or so Patagonian sheep have been introduced for cross-breeding, the enterprise, I am told, being in the hands of a British Syndicate which owns a sheep-ranch extending to over 130 square miles. It is, perhaps, too early to speak with any definite assurance as to the success of this enterprise, since it is necessary for the imported sheep to live for several years in their new surroundings before it can be said that they are acclimatized; but I am assured that so far the innova-

tion has been encouraging, and the mortality among the imported animals has been extremely small.

Far more profitable in results and ancient in pursuits is the cattle-raising industry, which is carried on practically in every ravine and valley with which the country abounds. It is even pursued on the tablelands at an elevation of from 2,000 to 3,000 feet, where suitable conditions are found. The cattle, which are met with in immense droves, have a small but thoroughly healthy appearance, especially in the Departments of Cajamarca, Junín, Ayacucho, and Puno; as well as in the Provinces of Acomayo, Chumbivilcas, Canas, and Anta. Formerly, the cattle were raised almost entirely for their fat—used in the making of soap—and their hides; but to-day the flesh is consumed almost generally, the meat being exposed for sale, cut up into unattractive and strange-looking joints—which would puzzle the butcher and the anatomist alike—upon the stalls of the markets, and it fetches there a fair price. This beef is often tough, and has nothing approaching the flavour noticeable in Argentine or Chilian cattle. With more cross-breeding from Argentine or British stock, Peruvian cattle would do very well upon the magnificent pasturelands which are available practically for the whole year round.

Hides form an important branch of the export trade of the Republic, but the returns show, like those of the wool industry, a wavering tendency. For 1907, including dry, raw, cured, and manufactured, there were exported 2,873 tons = £P124,676; for 1908, 2,414 tons = £P109,812; and for 1909, 2,508 tons = £P131,497. Most of these were exported from Callao, which port was responsible for 80 per cent. of the exports. France purchased practically the whole of the different consignments, and England the least.

Hides of various kinds are estimated at an annual valuation of £140,000, an amount which, of course, is

very trivial considering the possibilities of the country ; moreover, they show a declining tendency, having, for instance, fallen from £157,987 in 1906 to £124,676 in 1907. Between the years 1902-1905, the average was £154,596. For 1909, the exports amounted, as shown on previous page, to £131,497, for 2,508 tons. The United Kingdom and the United States are Peru's main customers for hides and manufactures made from them.

There are five well-known woollen factories in the Republic which give employment to a large number of workmen and workwomen, something over 600,000 kilogrammes of manufactured wool being put upon the local market annually. This output is, however, wholly insufficient to meet the demand, and as a consequence there is a large import trade carried on. Woollen goods to the value of £230,077 were imported in 1906, while for the following year the figures swelled to £259,317. The average for the three years 1902-1905 was £213,445. The United Kingdom, Germany, and France, contributed to the supply of such goods, but the United Kingdom was far ahead (see Appendix).

A product which has also made remarkable headway during the past few years is the coca-plant, which is a native of the warm valleys of Peru and Bolivia, and the leaves of which have been used by the Indians from time immemorial, in a dried form, for chewing. In Peru the plant is found growing in the form of a shrub, which seldom exceeds 6 feet in height. It is largely cultivated in the districts of Otuzco, Cuzco, Huanta, Tacna, Huánuco, and Huanachuco. The plant grows much better in the valleys lying at a height of from 1,000 to 2,000 metres above the level of the sea, and where the temperature does not fall below 18° nor rise above 30° Centigrade. Great care has to be taken in collecting and treating the leaves, but, unfortunately, I have not sufficient space to describe, as I should like to do, the

whole process of planting, garnering, and preparing for the market the leaves of this plant. That the industry is a highly-important one can be gathered from the fact that, after supplying local consumption, the exports in 1905 amounted to 341,000 kilogrammes in the form of leaves, and 6,800 kilogrammes in *cocaina*, representing a total value of £200,000. In 1907 *cocaine* was manufactured by twenty-four small factories, which produced 5,914 kilogrammes worth £66,636. The exports to Europe and the United States are made in two forms, that in *cocaina* and that in dried leaves, not only for the extraction of the alkaloid, but for the making of wines, tonics, elixir, and other medicinal syrups.

There were 5,265 kilogrammes of *cocaina* exported in 1909, worth £60,287.

Readers must not confuse *coca* with "cocoa," which latter product is as yet but sparsely cultivated, although both climate and soil are eminently favourable for its production. I have seen vast tracts of low-lying land in the Province of Jaén, and in the Departments of Amazona and San Martín, especially suited for the development and growth of the cocoa-tree. It is in the exuberant and extensive forests of the *montaña* region that the cocoa-tree grows spontaneously, that it is principally cultivated. Outside of Peru the exquisite taste and aroma of this particular cocoa is entirely unknown; the whole of the amount produced is not consumed in the country, since exports are made to Bolivia and Chile. I look for a further and fuller extension of the industry of cocoa-planting in the *montaña* zone, since it yields a considerable profit, and offers but very little difficulty in handling.

Rice has been grown in Peru since the Colonial period, and during the last few years much more land has come under cultivation, owing, no doubt, to the heavy protective import duties which have been introduced.

The northern coast districts, which are warm and otherwise favourable, are the particular localities best suited, and experts assure me that in regard to the quality of the rice raised, it is equal to the best kinds, which are produced in any other part of the world. The two varieties cultivated are the "Carolina" and the "Jamaica." In the Department of Lambayeque, in the Province of Pacasmayo, the best classes of rice are obtained, and it is here also that they are found in the greatest abundance. Unfortunately, it is impossible to depend from year to year upon any regular crops, the amounts of yield being entirely reliant upon the abundance or the scarcity of water, a matter which is not under the control of the agriculturist, but subject entirely to the advance or delay in the waterflow of the rivers. Thus the results of the crops must remain uncertain until some scheme is introduced, as has been effected in India, for instance, to regulate the supply of the necessary irrigating waters.

The average amount of the annual rice-crop in Peru may be put at 3,000 tons, with a corresponding value of £450,000. In the year 1905 it reached but 2,641 tons. Some of the more important estates have erected mills for treating the rice, and for the general use of all those who devote their attention to the cultivation of this grain there are several central mills erected in the towns situated round about the principal rice-producing valleys, of which the most important are : Ferreñafe, Chiclayo, Pacasmayo, and Eten. Practically all these mills are fitted up with the latest type of machinery and plant, but there are still others in process of erection, or contemplated, which offer opportunities to manufacturers of this class of installation.

In spite of the native production referred to, Peru imports a considerable amount of rice, the average value being £60,000 ; but both in 1906 and 1907 this average

was far exceeded, the value being, for 1906, £107,222, and for 1907, £205,904. The principal imports of rice came from China and Siam. On the other hand, the Republic over the same period exported rice to the value of £61,537 in 1906, and £18,737 in 1907, its customers being found among the neighbouring Republics. In 1909 there were exported 651,000 kilogrammes = £59,908; and imported to the value of £84,015.

In regard to tobacco, the manufacture of which has been a Government monopoly since 1909, although in Peru there are lands which are suitable, and a climate which is favourable for the cultivation of the narcotic leaf, its production has not increased to any appreciable extent. The plant is grown in Jaén, Tumbes, Jeveros, and Huancabamba. Personally I am no judge of tobacco, since I am a non-smoker; but I have been informed by connoisseurs that while the leaf grown in Peru is undoubtedly of superior quality, and is much preferred by the Peruvians themselves to any of the imported tobaccos, it is of somewhat too strong and too coarse a character ever to become very popular abroad. This statement seems to be borne out by the fact that some of the Peruvian tobacco is used for the purpose of mixing with other milder tobaccos in the manufacture of cigars and cigarettes; but these are sold under different marks and brands, and are consumed in the country.

The Government has done something in the way of experiment in tobacco-cultivation, but in many districts the industry has been abandoned entirely, notably in the District of Chanchamayo, in the Province of Convención, and in the Department of Cuzco; in all these places it has been regarded as a failure. Probably, were cultivation to have been pursued with more scientific skill, and had the tobacco-planters been instructed how to prepare and how to fix up the leaf, the results

might have been more encouraging. The total production of the leaf at present does not exceed 950,000 to 1,000,000 kilogrammes, of which about one-fifth is exported to the neighbouring Republics of Bolivia, Chile, and Brazil. It is to be observed with regard to the last-named Republic, that preference is given to the tobacco from Loreto, while Bolivia prefers that of Jaén. Peru imports its tobacco, snuff, cigars, and cigarettes from France, Germany, and Spain, the average annual value of such imports being between £15,000 and £20,000. For 1909 the figures were £15,270.

By a Government decree of March, 1910, the price of cigarettes is fixed at 1 cent each throughout the Republic, and a company, locally financed, exists which exploits the tobacco industry under the supervision of the National Tax-Collecting Company. This latter owns, by purchase, the cigarette factories located at Lima and in other parts of the country.

Among the other industries which the Spaniards introduced was the cultivation of wheat, but whereas, up till 1687, it was grown exclusively on the coast, repeated earthquakes and other climatic reasons induced the cultivators to go farther inland; so that to-day practically all the important wheat-fields of the Republic are found situated on the tableland area. Travelling through the Andean region, one comes across many isolated little patches of vigorous-looking, broad-eared wheat, especially in the north of Peru; but the industry has not by any means established itself firmly, and there is abundant opportunity for both improvement in method of cultivation and of area extension.

One of the reasons afforded for the small amount of attention given to wheat-growing is the lack of the necessary transport, a defect which will be overcome gradually as the iron-rail makes its way, as it is finding it gradually through the length and breadth of the

Republic. Land and labour are both available, and with the placing of cheap transport at the disposal of the cultivators, Peru ought easily to develop this agricultural industry, and then the grain produced would find markets in spite of its several peculiar features.

With regard to these I may refer to certain samples of wheat which were tested by one of my informants, who pronounced them similar in appearance and character—except that they contained more moisture—to the Egyptian wheat, which has been imported into various American countries, including the United States, since the early seventies. Some of my readers may be acquainted with the character of Egyptian wheat, and in this event they will remember that the grain from the Nile Valley is narrow and long in the berry, of a dirty-white colour, and very dry and ricey. The Egyptian wheat is of a very poor quality, the gluten especially being weak and valueless. The Peruvian wheats are somewhat cleaner and broader in the berry, and contain a little more moisture and flour than the Egyptian grain. Of the four samples to which I have referred, the percentage of moisture in the dry wheats was rather high, being as follows :

				Per Cent.
1. Siete Eshigas (seven ears)	...	...	...	14·6
2. Chamora ... ..	...	...	...	15·2
3. Barba Colorada (red beard)	...	...	...	14·4
4. Rodondo (round) ... ..	...	...	...	14·2

Wheat is usually sown in Peru from March to May, and in the valleys it is irrigated occasionally, two crops often being obtained during the year. On the lofty plateaux the rains provide sufficient moisture without irrigation being found necessary. The average production per unit of area is ten times the quantity of seed sown, although the yield is less bountiful where the soil is not cultivated. The Peruvian millers mainly use imported wheats for the production of flour, milling

only a very small portion of native-grown grain. At the present time the mills in Peru grind Australian wheats, but Chile and the Pacific Coast ports of North America sometimes supply a portion of the requirements. The importations of wheat from California and Australia exceed 400,000 tons annually. In 1906 the value of the imports was £266,517, and in 1907 £240,714, the average between 1902-1905 being £206,827. In 1909, wheat was imported to the amount of £269,067.

Barley is cultivated upon the lands where wheat is grown, its principal use being food for horses and pack-mules, the localities where it is mostly grown being the Departments of Ancachs and Arequipa.

Maize, the cultivation of which cereal has made great advance during the past few years, can be found flourishing throughout the whole national territory, the only part of the country in which it is not sown being the cold and cheerless region of the upper plateau. Perhaps the best quality is that which is produced in the Cuzco district, and some connoisseurs have pronounced the grain which is produced here to have been the choicest and most largely-yielding that they have seen. The well-known French agriculturist, M. Vilmorin, for instance, has said that of all the known kinds of maize, that of Cuzco is "the choicest and most vigorous grain, of the size of a bean, with a very thin pellicle, and very farinaceous." It is worthy of mention that at the St. Louis Exposition (U.S.A.) the Peruvian ears of maize, which were exhibited, obtained a gold medal, and formed a subject of lively discussion between the agriculturists present, who desired to use them for seed.

The poor people live almost entirely upon maize, with rice, and I have seen them consuming both greedily, hardly cooked, and before either was thoroughly ripe. So far the export of the grain is still in the incipient stage, but recently some small lots were shipped to

Central America. With the advent of the Panama Canal and the improvement in shipping facilities, which will then be forthcoming, we may reasonably expect a development of Peruvian maize export, the existing figures being of little or no importance. In 1906 the whole value amounted merely to £812, while for 1907 the figures dwindled to £680, the sole foreign customer being Bolivia.

Although the existence of the rubber-tree has been known in Peru for considerably over a century, the industry of extracting the gum for commercial purposes can only be said to have commenced in 1882, and the systematic exploitation of the industry from 1885. Throughout the extensive and beautiful timber regions, teeming with the exuberance of perpetual spring, with all its varied fertility and exquisite colouring, the rubber-tree, producing the veritable *Castilloa elástica*, is found flourishing as in few parts of the world. Upon the banks of all the rivers and rivulets which directly or indirectly empty themselves into the Amazon, this handsome tree is found yielding the precious *caucho* in abundance, and of a quality as fine as any to be met with in Brazil or the Far East.

Previous to 1885 the gum was obtained from the forests on the banks of the principal tributaries of the Marañon River, chiefly the Tigre, the Morona, and the Pastaza. From 1885 to 1897 the *caucheros* (rubber-gatherers) commenced to work, but in a very superficial manner, the Valley of the Ucayali; but here, as elsewhere, their ignorance prompted them to cut down the trees instead of "milking" them, their process being to fell the tree close to a hole which they had previously made in the ground in order to receive the milk, which then underwent a rough process of coagulation by means of a solution of soap and the juice of a native plant known as *vetilla*.

By this method (still considerably in vogue) each tree furnishes upon an average of 20 kilogrammes of rubber, which is exported in the form of planks or cakes, each one of which weighs from 40 to 50 kilogrammes. It is needless to say that even with the immense supply of rubber-trees of which Northern Peru is possessed, if this clumsy and thriftless method of gathering the *caucho* is persevered with, it is only a question of time when the forests will be completely exhausted.

I have seen many varieties of rubber-producing trees and plants in Peru, some of which are not even known to botanists ; but the most common kind belongs to the family *euforbacias*, species *hevea brasiliensis*, from which *jebe*, the highest grade of Pará rubber, is obtained. This latter tree is found at its best in the humid river-lands situated below the 300-foot level, and where it grows to a height of from 60 to 75 feet. The *castilloa*, belonging to the family *ulmaceas*, and which is the rubber-tree *par excellence* of both Central America and Mexico, is also found in Peru, usually in the drier lands, which are situated higher up in the *montaña*.

If only the natives could be induced to adopt the tapping process instead of felling the entire tree, infinitely more lasting—if not such heavy first—results could be obtained. By periodically tapping, besides saving the tree, a production of rubber of 10 kilogrammes per annum, as against an immediate production of 20 to 25 kilogrammes by felling the tree, could be obtained ; and since a rubber-tree, if not ill-used, will live for many years, the practical advantages gained are obvious.

The last-named process I have seen pursued in the Malay Peninsula, Ceylon, and Java, as well as in other countries ; by its adoption the owners of the rubber-estates enjoy a regular harvest which may be as firmly depended upon as any ordinary crops of fruit or vegetables.

Upon an average, three peons can work in a day a square consisting of from 100 to 150 rubber-trees, which will probably be found scattered indiscriminately over an area of about 100 acres. The labourers engaged, whether in felling or in tapping the trees, receive no fixed wages, their remuneration depending upon the quantity of the crude *latex* which they can bring in. As a rule, the labourer is paid something like 75 *sols* (= £7 10s.) per *quintal* (hundredweight), of *jebe*, and 40 *sols* (= £4) for *sernamby*, which is the residue or lower grade remaining after the preparation of *jebe*.

Almost all of the rubber gathered in the Peruvian Orient, comprising the larger portion of the country's production, is exported from the Amazon port of Iquitos, making its way thence down to Manáos, and, later on, to Pará, both of which ports are in Brazil, and thus it passes for "Best Pará Rubber." Iquitos lies some 2,653 miles up the river from the Atlantic Ocean, but, nevertheless, it is a regular port of call for lines of ocean steamers from New York, Liverpool, and Hamburg. Practically all the rubber which is shipped via the Pacific Ocean goes over the lines of the Southern Railway from Madre de Dios, Inambari, and the Lower Urubamba country, and is exported from the port of Mollendo. The export duty is 24 *centavos* per net kilogramme, or £24 per metric ton. At the present time there is a proposition before the Peruvian National Congress to change this duty to one of 10 per cent. on the London Market value, but it is doubtful whether this will be accepted, the Chamber of Deputies having recommended the lower figure of 8 per cent.* I attach, herewith, a table showing the amount of production of rubber in Peru for the last eight years.

The Government sells tracks of virgin woodlands

* Since writing the above, the tax has been (May 10, 1911) definitely fixed 8 per cent., and came into force July 1, 1911 (see Appendix).

RUBBER

PRODUCTION OF RUBBER IN PERU FOR EIGHT YEARS, 1902-1909.

	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	First Half of 1910.
<i>Jefe natural</i> ...	Kilos. 719,700	Kilos. 176	Kilos. 798,776	Kilos. 763,123	Kilos. 763,123	Kilos. 833,259	Kilos. 800,874	Kilos. 978,540	Kilos. 313,694
<i>Sernamby Jefe</i> ...	225,258	—	300,729	330,549	330,549	604,213	378,542	703,112	199,272
<i>Caucho</i> ...	89,299	14,886	78,571	101,810	101,810	142,223	126,419	133,810	50,382
<i>Sernamby Caucho</i> ...	648,945	2,792	1,042,848	1,343,137	1,343,137	1,398,230	1,209,836	986,105	530,745
Rubber not specified ...	16,339	2,089,997	—	—	—	—	—	—	—
Total ...	1,700,541	2,107,851	2,220,924	2,538,619	2,575,127	3,027,925	2,515,671	2,801,567	1,094,098

suitable for rubber exploitation, and situated in the country "terrenos de montaña," at the rate of 5 *sols* (10s.) per hectare (equal to $2\frac{1}{2}$ acres), and also grants concessions for the exploitation of the natural rubberlands under very liberal conditions—that is to say, either by granting a rental of a specified number of hectares, or by leasing groups which, in Peru, are called *estradas*, of 150 trees each, on the condition that 2 *sols* (or 4s.) be paid to the Government for every 46 kilogrammes of rubber extracted. In either case the lessee or concessionaire undertakes not to destroy the trees.* How reasonable are the taxes demanded by the Peruvian Government can be seen by comparing them with those prevailing in Brazil, where the exportation of rubber is taxed with the duty of 24 per cent. *ad valorem*, which represents nearly 40 *centavos* per kilogramme, as against 8 *centavos* in Peru upon *jebe*. In Bolivia the duty is as high as 16 *centavos*.

* See Appendix.

CHAPTER XV

Railways—Growth of systems—Existing lines—Standard gauge—Narrow gauge—New construction—Southern Railroad—Cuzco division—Track—Bridges—Rolling-stock—Freight—Passengers—Workshops—Management—Central Railroad—Oroya section—Remarkable scenery—Road—Bridges—Tunnels—Stations—Freight—Handicaps—Future prospects.

THE comparatively small amount of iron-rail to be found in Peru to-day occasions some surprise when one comes to remember that it was in this country that the second, if, indeed, not the first, railway in South America, was built. I refer to the short line of 13·7 kilometres, which connects the port of Callao with the capital of Lima. During the last sixty years the length of line constructed in national territory has not exceeded 3,000 kilometres (less than 2,000 miles). The gauges are by no means uniform, ranging as they do from 0·60 to the extreme width of 1·45 millimetres.

Considering also the immense amount of revenue which the Republic has enjoyed in years gone by from its guano and nitrate deposits, as well as from other sources, one might reasonably have expected Peru to be possessed of the finest railway system of any South American Republic. Different administrations of different periods have made spasmodic efforts to move in this direction, but it would seem that when confronted with the estimates of cost, and faced with the topographical difficulties with which the country literally bristles, the programme was usually modified, and but little of what was intended actually done.

It is to be admitted that Peru does not offer a tempting field for railway construction, owing principally to the immense distances which separate its different centres, its modest population, and the many stupendous physical obstructions which have to be overcome. It is all the more noteworthy perhaps to find this Republic possessed of a railway which, for sheer audacity of conception and ingenuity in construction cannot be matched by any country in the world. I refer to the famous Oroya Railway section of the Central Railway of Peru, and familiarly called the "Railway in the Clouds," which cost the sum of nearly £5,000,000, on the greater portion of which dividends never have been, and can never possibly be earned.

The most earnest step taken by any President in regard to transportation matters in Peru was that of the late Señor Candamo, who, in 1904, promulgated a new law regarding railways, by which the annual amount of £200,000 was to be devoted to their construction, such amount being the entire proceeds of the tax on tobacco, and which is now a Government monopoly. Every Presidential programme since then has contained eloquent promises with regard to the construction of railways, while numerous and important concessions are continually being granted by the Government of Peru for the extension of existing and for the construction of additional tracks, North American capitalists being the most energetic to obtain these concessions, and the most dilatory in carrying them into execution. Several banking establishments in Europe are at the present time negotiating with the Government, as they have at times past negotiated with its predecessors, to advance money for the construction of new railways; and one important scheme, known as the Amazon and Pacific Railway, has recently been before the attention of Congress, whose final decision,



PUENTE DE CHILLÓN (ANCON-LIMA RAILWAY).



PUENTE DE PIÉDRO (STONE BRIDGE) AT LIMA.



PUERTE DE CHAUPICHACA, ON THE LINE OF THE CENTRAL RAILWAY.

in regard to it and certain important modifications demanded, is favourable to the project.

The national railway transportation of Peru is to-day under the management of a British concern, known as the Peruvian Corporation, Limited, with a total debenture and share capital of £21,610,121, and which, some twenty-one years ago, took over from the Government all the railways with their lands, as well as other possessions, as representative of the foreign bondholders whose money for the most part had paid for them, and in consideration of which the whole of the Foreign Debt of the Republic of Peru was to be regarded as cancelled. This Corporation manages altogether seven railways, one line of lake-steamers, a large cotton-mill, and a land colony. The railways are as follows: the Southern, the Central, the Guaqui (Bolivia), the Trujillo-Salaverry, the Pacasmayo-Guadalupe, the Paita-Piura, the Chimbote-Tablones, and the Pisco to Ica Railway. The steamers are conducted in connection with "the Lake Titicaca Service." The cotton-mill is that of the Peruvian Cotton Manufacturing Company, Limited, and the land colony is known as the Perené Colony, and this is about the only present unremunerative asset which the Corporation possesses.

While Mexico as well as Chile lay claim to having built the "first railway-line in Spanish-America," Peru avers that the first track to be laid upon the Southern Continent was that small section of line, already mentioned above, running from the port of Callao to the capital of Lima, in the year 1848, the length being precisely 13·7 kilometres (about 7 miles). To-day the system has grown to nearly 3,000 kilometres (=1,825 miles), which is still inconsiderable when compared to such Latin-American States as Mexico, Argentina, Brazil, and Chile. The Peruvian railway systems are made up as follows :

STANDARD GAUGE LINES.

	Kilometres
<i>Northern Section :</i>	
Paíta to Piura	97·100
Eten to Ferreñafe	43·100
Chiclayo to Pátapo	24·100
Pacasmayo to Guadalupe y Yonán	96·100
<i>Central Section :</i>	
Lima to Chorillos	14·052
Lima to Magdalena del Mar	7·600
Lima to Callao	13·717
Callao to La Punta	2·600
Callao to Bellavista	3·400
Lima to Ancón... ..	38·200
Callao to Oroya	222·000
Tielio to Morococha	14·650
Oroya to Cerro de Pasco	132·000
Cerro de Pasco to Gollarisquisca	43·000
Oroya to Huari	20·560
<i>Southern Section :</i>	
Pisco to Ica	74·000
Mollendo to Arequipa	172·200
Arequipa to Puno	351·760
Juliaca to Sicuaní	197·600
Sicuaní to Checcacupe	41 000
Arica to Tacna	63·000
<i>Electric Section :</i>	
Lima to Callao y La Punta	15·175
Lima to Chorillos	13·150
Lima to "La Herradura"	17 000
Total	1,717·064

NARROW GAUGE LINES.

<i>Northern Section :</i>	
Piura to Catacaos	10·650
Bayovar to Reventazón	48·480
Pimentel to Chiclayo	24·140
Eten to Cayaltí	36·372
Salaverry to Trujillo y Ascope	76·000
Huanchaco to Tres Pálos	67·500
Trujillo to Laredo y Menocucho	25·950
Chicama to Pampas	44·900
Chimbote to Tablones	57·000
<i>Central Section :</i>	
Supre to Barranca y Pativilca	12·000
Supre to San Nicolás	6·000
Río Pativilca to Paramonga	7·500
Playa Chica to Salinas de Huacho	10·000
Chancay to Palpa	25·000
Casapalca to El Cármen	4·620
<i>Southern Section :</i>	
Cerro Azul to Cañete	10 000
Tambo de Mora to Chíncha Alta	11·920
Ensenada to Pampa Blanca	20·000
Total	2,215·096

Or, an average of 1,384 miles, exclusive of some hundreds of kilometres which have since been acquired by purchase.

It is to be observed that since this list was compiled several small and scattered sections have been completed, and are now in working, thus bringing up the total mileage of P.C. lines to close upon 1,850 miles. Additionally, I may mention that many of the above enumerated lines, although of importance in a great or less degree, are small, the number of stations varying from twenty-two, as in the case of the Callao to Oroya section, to only two, as on each of some sixteen sub-branches or connections.

The amount of capital actually expended upon the whole of the constructed lines and those under construction has exceeded to date £35,000,000. An immense amount of rolling-stock of all descriptions has been provided, some of it, however, being antiquated and inefficient, while the condition of the tracks varies according to the particular management in control. All the State railways are under the control and management of the Peruvian Corporation, and are well maintained, generally speaking. The other lines are the respective properties of sugar-estate owners, mining companies, and private concerns, and these call for little further comment.

The exact amount already expended, the sums now being laid out upon new construction, and the amount in contemplation relating to an important new northern line, will be found of service in the following table, which is believed to be up-to-date :

Lines already in operation belonging to the State	£24,810,131
Lines already in operation belonging to private concerns	6,271,485
	<hr/>
	£31,081,616
Additional sections as opened and in working, about	918,384
Lines now under construction belonging to the State	1,866,088
Lines for which concessions have been granted ...	2,000,000
	<hr/>
	£35,866,088

In speaking of the Peruvian railways, it will be desirable to refer to them in their respective groups or systems, the most important of which are the Southern and the Central.

The length of the Southern Railroad is 594·19 miles, made up as follows: Mollendo to Puno, 325·1 miles; Guaqui to El Alto, 55·3 miles; El Alto to La Paz, 5·6 miles; Juliaca to Cuzco (branch), 209·9 miles. It will be observed that I have included in this total of 594·19 miles the section from Guaqui to La Paz, which, however, will be described in full in a later part of this volume, my reason for so doing being that this section now belongs entirely to the Southern system, and is an integral part of its system. It may be remembered that there is also a service of lake-steamers worked in conjunction with this railway, the boats running from Puno, on the Peruvian side of Lake Titicaca, to Guaqui, on the Bolivian side, the distance across being 128 miles. The total track of transportation, therefore, which is managed by the Southern Railway of Peru, amounts to 722·9 miles.

There are two gauges found upon this system—that between Mollendo and Puno, as well as that between Juliaca and Cuzco, being 4 feet 8½ inches; while the Guaqui to La Paz section is 3 feet 3⅓ inches (metre gauge). The road-bed of the Mollendo-Puno section is 16 feet on embankment, 18 feet in rock excavation, and 20 feet in earth excavation, as a general rule. The ballast used is river-shingle, gravel, sand, and broken rock. On this division (Mollendo-Puno) the rails are 60 pounds laid on Oregon-pine sleepers, 6 × 6 × 8, the same weight of rail being used upon the Puno-Cuzco section; while from Guaqui to El Alto the weight is 40 pounds, and from El Alto to La Paz 60 pounds.

Upon the "Mollendo division"—that is to say, from Mollendo to Arequipa—there are a considerable number

of stations, the first-named place being the terminal and at the same time the port of entry for all through-goods and passengers carried by the Southern Railway. Unfortunately, Mollendo is anything but a good port, and although the Peruvian Corporation have, in conjunction with or upon behalf of the Government, expended a large sum of money in building a breakwater and mole, the actual position is but slightly improved, and it is to be feared that Mollendo will for long fail to merit the distinction of providing even a moderately safe entrance.

The Southern Railway Company has erected a well-designed station at Mollendo, and goods-sheds of ample dimensions, the construction being carried out in cast-iron, masonry, wood, and corrugated iron.

Arequipa Station is built of cast-iron, with wooden sheathing and corrugated-iron roof, the administration buildings, which are practically new, being constructed of masonry with wooden floors. There are fifteen other stations on this division, all being built of masonry or wood with corrugated-iron roofs.

The "Puno division" (from Arequipa to Puno) has sixteen stations, exclusive of Puno terminal. Six of these stations are of wood and corrugated iron, eight are of masonry, and one is of brick. At Puno both the passenger and freight sheds are of masonry with corrugated-iron roofs. These structures are substantial and neat, while there is an abundance of yard-room available both at Puno and at the mole.

The "Cuzco division" (from Juliaca to Cuzco) has twenty-three stations, eight being of masonry, nine of *adobe* (or sun-dried bricks), and six of wood, all alike having corrugated-iron roofs. It is unfortunate that this last section upon the railroad, which is the most recent to have been opened, has hitherto proved somewhat unsatisfactory from a freight and passenger carrying point of view. The former has not come up to

expectations, but there seems some chance of its prospects brightening. With regard to the passenger-service, hitherto but an unsatisfactory state of affairs has been met with. Upon occasions an entire train, which is made up of passenger and freight cars, will fail to carry more than four or five passengers ; and I understand that the inhabitants have shown themselves absolutely indifferent to the advantages which the railway offers as a cheap and expeditious means of transportation. The Indians cling slavishly to their primitive method of animal-traction (llamas and *burros*—*i.e.*, donkeys), while even among the more wealthy Peruvians the existence of the railway is persistently ignored. Such experience is certainly not encouraging either to the Government, who built the line, nor to the Company which runs it ; and but for the tourist traffic, which is carried at a certain time of the year, it is doubtful whether the line to Cuzco would be able to justify itself.

In regard to the gradients on the main line between Mollendo and Sumbay, the maximum is 4 per cent. ; from Sumbay to Santa Lucía, $3\frac{1}{2}$ per cent. ; and from Santa Lucía to Puno it is but 1 per cent. On the Cuzco branch, from Juliaca to Santa Rosa, the grade is 2 per cent. ; from Santa Rosa to Araranca, 3 per cent. ; from Araranca to Sicuaní, 4 per cent. ; and from Sicuaní to Cuzco, $1\frac{3}{5}$ per cent. From Guaqui to El Alto the grade is 2 per cent., and from El Alto to La Paz, 6 per cent.

There are several interesting bridges on the Southern Railway, which may be described briefly as follows : “ Mollendo division,” one deck-plate girder iron bridge, 100 feet span, crossing the Tingo Grande River ; “ Puno division,” a new steel deck-plate girder bridge, consisting of two spans of 65 feet, crossing the Chili River, made by the American Bridge Company, and erected in 1908. The same manufacturers are also responsible for the bridge crossing the Sumbay River, which was

finished as late as January of last year. It consists of two spans of 65 feet, two spans of 41 feet, tower-span of 30 feet, and a central steel tower 130 feet in height, upon concrete pillars. There are no other bridges upon this section exceeding spans of 25 feet.

On the "Cuzco division" (Juliaca to Cuzco) there are also a considerable number of bridges, of which the following are the brief details: Rio Maravillas, cast-iron bents on screw piles 450 feet in length, eighteen spans of 25 feet; Rio Calapuja, same as the Rio Maravillas bridge, twenty-four spans of 25 feet, 600 feet in length; Tirapáta, single span of 180 feet, deck Fink truss; kilometre 80, cast-iron bents on screw piles, six spans of 20 feet, 120 feet in length; kilometre 93, same as kilometre 80, eight spans of 20 feet, 160 feet in length; Pulpera, single through Howe truss of 100 feet; Rio Vilcanéta, trestle 600 feet in length, constructed entirely of old iron rails, thirty spans of 20 feet; Rio Vilcanéta, kilometre 216, cast-iron bents on screw piles, six spans of 20 feet, 120 feet in length (erected 1907); Rio Cilcanéta, kilometre 235, same as kilometre 216, fourteen spans of 15 feet, 210 feet in length (also erected 1907); Rio Vilcanéta, kilometre 239, two spans of 65 feet, deck lattice-girder, and erected in 1909 by the American Bridge Company; Rio Huatanay, kilometre 306, single span 50 feet, steel deck-plate girder, also erected the same year by the Company.

The culverts, generally speaking, are of masonry, with iron girders, but there are a number of stone-arched culverts on the main line of the Cuzco branch, with spans up to 13 feet. There is only one tunnel upon this railway, and that occurs on the Puno division at kilometre 55, a little north of Arequipa; it is 700 feet in length.

The remaining gradients are as follows: "Mollendo division"—Mollendo to Ensenada, level; Tambo to Pesco, 3 per cent.; Cahuintala, level; Cachonde, $\frac{1}{2}$ per

cent. ; Huagri, level ; La Joya, $\frac{1}{2}$ per cent. ; San José to Ramál, level ; Viter, 3 per cent. ; Quishuarani to Granite, level ; Tingo, 1 per cent. ; Desvie to Arequipa, 3 per cent. "Puno division"—Cantera, 3 per cent. ; Yura to Uyupampa, level ; Quisces, $3\frac{1}{2}$ per cent. ; Ayrapal, 1 per cent. ; Pampa de Arrieres, 3 per cent. ; Abra, 2 per cent. ; Cañaguas, 3 per cent. ; Sumbay, level ; Puccacancha, 1 per cent. ; Vincecaya to Crucere Alto, level ; Pariguanas, 2 per cent. ; Lagunillas, level ; Saracecha, $2\frac{1}{2}$ per cent. ; Santa Lucía, $1\frac{1}{2}$ per cent. ; Maravillas to Puno, level. "Cuzco branch"—Calapuja to Chuquibambilla, level ; Santa Rosa, 1 per cent. ; Araranca, 3 per cent. ; La Raya to Marangani, level ; Sicuaní, 1 per cent. ; San Pablo to Chuquicahuana, level ; Cusipata, 1 per cent. ; Quiquijanas to San Jerónimo, $\frac{1}{2}$ per cent. ; and to Cuzco, 2 per cent.

The rolling-stock on the Southern Railway is, owing to the length and importance of the line as a freight-carrier, both diversified in character and considerable in amount. There are some fifty cars, including various types, and made up as follows : Three sleeping-cars, one saloon car, thirteen first-class coaches, two combination coaches (first and second class), fourteen second-class coaches, three combination cars (second-class and baggage), thirteen baggage cars, and one first-class car.

In regard to freight-cars, the equipment at present consists of 387 waggons, varying in carrying capacity from 18,400 to 35,000 kilogrammes ; in length, from 25 to 35 feet ; in width, from 8 feet 4 inches to 9 feet ; and height, from 4 to 7 feet. The types are mainly box-cars, of which there are 190, while there are 133 flat-cars, 38 coal-cars, and 10 cattle-cars.

Considering its length of track, I know of few railways which are better equipped with locomotives than the Southern Railway of Peru. From first to last, there

are eighty-eight engines, the oldest of which dates back to 1871, and the most recent to 1907. Various makes are represented, including Rogers, Danforth, and Baldwin. The newest type (1907), which are all of Rogers's make, have cylinders 20×28 ; driving-wheels, 52 inches; boiler pressure, 180; the weight of engine being 73 tons, tender 36 tons, or a total of 109 tons. Another type, by the same manufacturers, has 58-inch driving-wheels, a boiler-pressure of 200 pounds, and a weight of engine 70 tons, tender 45 tons, or a total of 115 tons. There are eight locomotives of this latter type, and I am informed that they have proved exceedingly good and serviceable engines.

The character of freight handled by the Southern Railway of Peru is principally foodstuffs, including flour and sugar, alcohol, lumber, coal, and general goods for Bolivia; as well as flour and sugar, wines and spirits, lumber and general supplies for Arequipa and the larger districts which are served by the line. There are also considerable consignments of wool, minerals, borax, rubber, hides, and cocoa carried by this Company, while during the last two years a large quantity of construction material for the new Arica-La Paz Railway has been transported. These latter freights have been naturally only of a temporary nature, and upon the completion of the new railroad they will have ceased. The contractors of the Arica-La Paz Railway now bring in at least some of their own material and rolling-stock through the port of Arica. While it lasted, however, the increase of freights proved very profitable to the Southern Railway—a fact which has been reflected in the last annual report presented by the directors.

The workshops, which are established at Arequipa, although somewhat small in dimensions, have been so well arranged and are so well managed that they are capable of doing all the repair and construction work

which the railway calls for. Mr. W. Cockfield is in charge of these shops, and surprising is the amount of excellent work which is turned out under his superintendence. Since Mr. Cockfield came, the strictest economy has been exercised, but the efficiency of these shops has been practically doubled, and I am informed that the Indians who are engaged in its various departments, such as the boiler-shops, carpenter-shops, machine-shops, engine-shed, and foundry, are proving themselves very capable and malleable.

The Southern Railway of Peru affords another instance of what capable management can effect in regard to a line which, for years, had proved troublesome, and even unprofitable. Under the management of Mr. H. A. McCulloch, the line has made steady and consistent progress, with the result that it is to-day in a strong financial position ; and even if this position be somewhat threatened, as those most concerned fear it is, by the approaching completion of a new and powerful competitor in the Arica-La Paz Railway, there is reason to believe that the directors of the Southern Railway, who have had plenty of opportunity for arranging its business and preparing for the inevitable, will rise to the occasion, and know both how to meet and compete with the rivalry when it becomes an accomplished fact.

One of the features of the railway management under the control of the Peruvian Corporation has been the excellent relations which exist, and have for some years existed, between the management and the public. In connection with the local control and supervision of the Southern Railway, it would be difficult to find a more competent manager than Mr. H. A. McCulloch, who is extremely popular in Arequipa (the headquarters of the Southern Company) and throughout the entire district through which the railway operates. It is only those who have lived in Latin-America, and who know



SAN VICENTE, CAPITAL OF THE PROVINCE OF CAÑETE (DEPARTMENT OF LIMA).



AREQUIPA: BOULEVARD, WITH "MISTI" VOLCANO IN THE DISTANCE.

the people and the difficulties of handling them, who can realize what a "popular manager" of a railway with a long track to handle means in the operation of the line. Mr. McCulloch, who was with Mr. W. L. Morkill in Mexico, is one of his most able and valued assistants in Peru.

The Southern Railway, the second most important of the Corporation's transportation systems, comprises, as we have seen, five lines in all, of which three are mountain and two coastal railways. The three principal sections are those from Mollendo to Arequipa—172 kilometres; Arequipa to Puno—351 kilometres; and Juliaca to Sicuaní—197 kilometres. The most recent addition to the Corporation's railways is the extension from Juliaca to Cuzco, and which, although up to the present, as indicated above, this has proved disappointing in the amount of freight carried, gives promise of developing in due time into an important and profit-earning branch of the Southern System. It is proposed to continue the railway from Cuzco to Santa Ana, and in the event of this extension being built, it can hardly fail to prove a valuable feeder to the system. A survey for such a railway has already been made by the Peruvian Corporation for account of the Peruvian Government.

While the gross receipts of the Southern Railway actually declined in the year 1909-10, the working expenses were so much reduced that the net receipts resulted as follows:

INCLUDING THE CUZCO DIVISION.

	1909-10.		1908-09.		Difference.			Per Cent.
	£	s. d.	£	s. d.	£	s. d.		
Gross receipts ...	358,766	4 6	419,210	3 1	60,443	18 7	-14.12	
Working expenses	221,366	0 10	316,649	12 8	95,283	11 10	-30.10	
Net receipts ...	137,400	3 8	102,560	10 5	+34,839	13 3	+33.96	

The Peruvian Central Railway, better known as the "Oroya Huancayo Railroad," has been, not undeservingly, described as the most remarkable railway in the world. Remarkable it is, first, for the audacity of its conception; secondly, for the extravagant manner in which it has been constructed; and thirdly, on account of the unfortunate financial results with which it had met.

Like the majority of the Peruvian railways, the Central starts from the coast of the Pacific Ocean, at Callao, and, after running for some kilometres through wheat, cotton, and sugar estates, it reaches its first narrow opening in the slopes of the Cordillera Mountains, an opening which has been caused by the erosion in the rocks effected by the furiously-running waters making their way to the ocean.

Already, at a distance of 50 kilometres, the line has ascended 1,000 metres above sea-level, and thereafter it continues to creep higher and higher, through deep cuts, across daring viaducts, through a multiplication of tunnels, and round and about prodigious zigzags. An ultimate height of nearly 16,000 feet is reached, the track passing thence for hundreds of kilometres through an absolutely desolate and barren snow-bound region, devoid of every vestige of vegetation, and of so wild a nature as to cause the traveller to marvel that a railway in such a region should have ever been constructed.

The total length of the main line is as follows: Callao to Huancayo, 208·44 miles; Lima to Ancón, 23·56 miles; and Ticlio to Morococha, 8·49 miles, or a total of 240·49 miles.

In regard to any new construction, there is nothing at the present time being attempted here, or contemplated, so far as the Peruvian Corporation is concerned; but the Government is constructing an extension of the main line from Huancayo to Ayacucho—a distance of

240 kilometres. At the time of my visit to this railway some 20 kilometres of road-bed were ready to receive the track, but work then was, and still is, I believe, suspended. (See Map).

The road-bed of the main line, from the coast to San Bartolomé, is formed mostly of gravel, which in this part of the country is called *cascajo*. The gravel is of a very coarse nature, but it makes a very solid foundation, and one which is easily kept dry. From San Bartolomé, which is at kilometre 76, the road-bed is almost solid in some places, since the track is built upon the rocky side-hills, up which it climbs and creeps, cutting off points by many bridges and tunnels. This class of road-bed is met with as far as Casapálca, at kilometre 154. From Casapálca onwards to Tanque Viscas, at kilometre 180, it is not of so good a quality; and here a clay soil is struck which is rather hard to drain. Considering all things, however, the road-bed keeps in fairly good condition, with the careful supervision and continual attention which it receives.

From Tanque Viscas to Huancayo, a *cascajo* formation is again encountered, and, as a consequence, provides first-class road-bed. The mean width is 4·20 metres. The nature of the ballast used changes from section to section over the whole line. In most cases it is thrown up from the side of the tracks, and in the *cascajo* section it is very fair. On some sections there is natural broken-stone ballast used, which serves the purpose excellently. Upon the Ancón branch the ballast is sand. The sleepers are of California red-wood, 6 × 8 × 8, and the weight of the rails is 70 pounds per yard. The gauge of the main line is standard (= 4 feet 8½ inches). The gradients are as follows: Callao-Lima, 1·5 per cent.; Lima-Chosíca, 2·5 per cent.; Chosíca-Ticlio (summit), 4 per cent.; Ticlio-Oroya, 4 per cent.; Oroya-Huancáyo, 1·5 per cent.; Ticlio-Moro-

cócha, 4 per cent. ; and Lima-Ancón, 2·75 per cent. As will be noticed, the maximum grade is 4 per cent.

Considering the length of the line, the number of stations is very small—a fact, however, which is quite comprehensible after a journey between terminus and terminus, and the opportunity afforded of seeing the paucity of population and the generally abandoned character of the country through which much of the line passes. Altogether, there are seven first-class, eighteen second-class, and twelve third-class stations, the terminals being—Callao, Montserráte, Chosíca, Oroya, Huancáyo, Ancón, and Morocócha.

Naturally, upon a line of such character as this, which climbs from sea-level to nearly 16,000 feet above, there are found a considerable number of bridges, many of which are of great engineering importance, such, for instance, as that known as the Challápa, and that other known as the Verrugas, both which are of world-wide celebrity.

The following is a list of the bridges, the greater part of which were built in the United States of America : Ancón branch—Chillon and La Palma, built in 1908 and 1891 respectively ; main line—Purhuay, kilometre 65 (1908), 71 feet ; Corcona, kilometre 66 (1872), 124 feet 4 inches ; Veraguas, kilometre 84 (1890), 575 feet ; Puchuchana, kilometre 88 (1892), 70 feet ; Ucuta, kilometre 93 (1908), 172 feet 10 inches ; San Juan, kilometre 94 (1908), 88 feet 9 inches ; Challape, kilometre 99 (1908), 356 feet ; No Name, kilometre 109 (1874), 53 feet ; Viso, kilometre 110 (1902) ; Chaupichaca, kilometre 117 (1908), 426 feet ; Infiernillo, kilometre 130 (1908), 204 feet ; Anche (1), kilometre 133 (1908), 300 feet 2 inches ; Rio Blanco (1), kilometre 134 (1908), 104 feet ; Rio Blanco (3), kilometre 135 (1876), 75 feet ; Rio Blanco (4), kilometre 135·7 (1903), 85 feet ; Copa, kilometre 136 (1908), 275 feet ; Corcornado, kilometre 148

(1892), 104 feet ; Van Bocklyn, kilometre 166 (1892), 168 feet 4 inches ; Viscas, kilometre 174 (1892), 178 feet 3·5 inches ; Rumichaca, kilometre 188 (1893), 63 feet 8 inches ; Pachachaca, kilometre 203 (1893), 64 feet ; Huancáyo extension, Pachacayo, kilometre 40 (1908), 97 feet ; Mantaro, kilometre 62 (1908), 230 feet ; Ataura, kilometre 82 (1908), 130 feet ; San Lorenzo, kilometre 88 (1908), 70 feet ; Matahuasi, kilometre 96 (1908), 315 feet ; and Concepción, kilometre 99 (1908), 100 feet.

In addition to the above, there are a number of smaller bridges, which, including those in the Huancáyo extension, number about sixty-seven. From first to last there are something like eighty tunnels, several of which are encountered one after the other, the train passing from one, across a bridge, into the next in a manner encountered on no other railway in the world with which I am acquainted. Such a feature is encountered at the Infiernillo bridge, and the effect upon the ordinary traveller, who sees it for the first and even for the second and third time, is remarkably impressive.

The character of the up-freight carried by the Central Railway is mostly lumber and machinery, together with general merchandise for the mines ; while the down-freight consists of ore, copper bars, and various forms of treated ores.

The General Manager in Lima is Mr. J. H. Feehan, an extremely capable and experienced railway man, who has manifested conspicuous skill in handling the somewhat complicated system under his control. In Mr. Page, the Traffic Manager, the Company possesses an official of equal ability, and one who has helped to popularize the line considerably among all classes.

The Central Railway has really never had a good chance yet of showing what it can earn. Handicapped

at the outset with a gigantic capital, it has been, until comparatively recently, but indifferently managed, while several unfortunate accidents have transpired which has thrown it back on the road of progress. The most disastrous of all these occurrences was the tragedy which occurred in February, 1909, at Chaupichaca, when a new bridge under reconstruction was partly wrecked, and eleven employés were killed by a runaway engine, which, being insufficiently protected by the attendant waggon, which should have been, but was not, attached, started down a steep curve, and, passing entirely beyond the control of the driver, dashed into a group of working men, and then hurled itself, together with part of the bridge, into the foaming torrents below.

This accident cost the Company no less than £6,500, to say nothing of the losses incurred by a complete suspension of through traffic for nearly three months.

Another contretemps was the destruction by fire, in the month of January following, of the station and administration offices in Lima, known as Desamparados. The building was insured with the Peruvian Corporation for the sum of 50,000 *sols* (£5,000), against which had to be charged the cost of replacing furniture, etc., and clearing the site, leaving the Company with nearly 26,000 *sols* (£2,500) towards the cost of erecting a new building, which is now in hand and almost completed.

The financial operations of the Central Railway, like those of the Southern Railway, resulted for the last year (1909-10) in an increase in the net receipts, in spite of the fact that the gross receipts were smaller in value. But the working expenses were also reduced in even a greater degree, so that the results, so far as the proprietors were concerned, proved eminently satis-

factory. The statement for the working of the Central Railway for the period mentioned is as follows :

	1909-10.	1908-9.	Difference.	Per Cent.
	£ s. d.	£ s. d.	£ s. d.	
Gross receipts ...	880,952 17 3	899,505 15 2	-18,552 17 11	- 4·64
Working expenses	256,665 5 4	306,011 13 2	-49,346 7 10	-16·12
Net receipts ...	124,287 11 11	93,494 2 0	+30,793 9 11	+32·93

CHAPTER XVI

Railways (*continued*)—Guaqui-La Paz Railroad—Important acquisition—Contemplated developments—Lake Titicaca service—Rolling-stock—Stations—Workshops—Paíta-Piura Railway—Pacasmayo-Guadalupe line—Trujillo branch—Chimbote-Tablones link—General management—Prospects of Peruvian Corporation Railways—Great mineral developments.

THE Guaqui and La Paz road has a length of 98 kilometres of main line, 3 kilometres of branches, or a total of 101 kilometres. Construction by the Bolivian Government commenced in 1902. The road-bed is ballasted with gravel, the rails being laid upon sleepers of red Oregon pine 6 × 6 and 8 × 6. From Guaqui, which is the port of Lake Titicaca, upon the Bolivian side, to the station known as Alto de La Paz, or a distance of 88 kilometres, the rails are 40 pounds. From the Alto to the city of La Paz, which is an electric-traction line, 9·4 kilometres in length, the rails are 60 pounds. There are seven stations in the 97·4 kilometres, two of which are terminals. One of these, the La Paz station, consists of a number of substantial modern buildings, and contains the general offices of the railway. There are two cargo-sheds of similar construction. The Alto station is the connecting-point of the steam and electric sections, and contains a station building of calamini and stone construction. Here are, in addition to the station-master's house, located drivers' houses, cargo-sheds, and a running-shed. At this station there is a cross-over Y.

The next most important station is that at Viacha,

which, hereafter, is likely to become a very busy centre, inasmuch as it will be the meeting-point of three different lines of railway, and perhaps of even four. Viacha is the terminal point of the Oruro-Viacha section of the Antofogasta and Bolivia Railway, and the present terminal of the Arica-La Paz Railway. It consists of station-building, with station-master's house of calamini and wood construction, water-tank, shed, etc. Capiiri is a small station containing a caretaker's house, and it has stone platforms; Querqueta station consists of station-building of stone and wood; Tiaguanaco is a station-building of stone, adobe, and calamini, including station-master's house and shed for cargo. Guaqui, which has already been mentioned as the terminal point or port on Lake Titicaca, includes the administration house and offices of the superintendent of steamers. These buildings are constructed of stone, adobe, and calamini. There are four very commodious and well-built cargo-sheds, which are the property of the railway, but they are used by the railway and Custom House conjointly.

The gauge of the main line is 1 metre (3 feet $3\frac{3}{8}$ inches). The track is divided into a steam section, from kilometre 1 to kilometre 86, and an electric section, from kilometre 86 to kilometre 98. The maximum grade on the steam section is 1·8 per cent., and on the branch 4·5 per cent. On the electric section the grade is 6·25 per cent.

The number of bridges on the first-named section are as follows: One Fink truss, at kilometre 64, consisting of one span 13 metres; and twenty-nine bridges formed of I beams 15 inches in depth, varying from 3 to 10 metres. There are seventy-four culverts, formed of iron piping, varying from 3 feet to 10 inches in diameter. On the electric section there is one bridge, consisting of three spans of 10 metres; one span is formed of 21-inch

differdange I beams, supported upon abutments, and two pillars formed of iron rails. There is one bridge of 8 metres span, formed of 15-inch I beams, supported on stone abutments; and one bridge 10 metres span, formed of 21-inch differdange I beams, on stone abutments. There are five culverts built of masonry, and seven of iron tubes, 21 inches in diameter. There are no tunnels. In regard to switches, apart from those for sidings at stations, there is a crossing-siding at kilometre 44, 250 metres in length; a second at kilometre 87, 100 metres in length; and a third on the electric section at kilometre 5, 50 kilometres in length.

The rolling-stock on the Guaqui railway was, at the time of my seeing it, far from being in its pristine perfection, and no doubt it has been necessary to renew the greater part of it. This rolling-stock consisted of four freight and passenger locomotives, and one switching engine. Numbers 1, 2, and 3 were made by the Baldwin Locomotive Works, of Philadelphia, U.S.A., and weighed from 28 to 32 tons; Number 1 had cylinders 18×13 , with 38-inch wheels; Numbers 2 and 3 had cylinders 14×18 , with 38-inch wheels; Number 4 of Rogers's make; while Number 5 (switching engine) was out of the shops of Peckett, of Bristol.

I am informed that seldom has a more satisfactory piece of rolling-stock than this shunting engine been met with in this part of the world, both the management and engine-drivers speaking of it almost with affection, crediting the engine with the best of all virtues on the part of a locomotive—"reliability and perfection of detail."

On the other hand, I understand that British locomotives, as a rule, are not found the best for these railroads, on account of the manufacturers overlooking the important fact that engines should not be too rigid in their build for mountain railways. It seems that in



RIO BLANCO, SHOWING RAILWAY STATION (SOUTHERN RAILWAY COMPANY)
AND SMELTER.

most of the locomotives sent out from home too much metal is used, and that otherwise they are not adapted to the rough tracks met with on the Peruvian roads. Apart from this, the absence of standardization in regard to the parts is a serious drawback, and compares unfavourably with the advantages possessed by the American locomotives, especially those of Baldwin make, all duplicate parts for which are easily obtained.

Were British manufacturers to make a careful note of these facts, and adapt their engines more closely to the requirements of the particular country to which they are to be despatched, there is no reason whatever why British locomotives should *not* compete successfully with those of the United States or any other country, and it is equally certain that they could be imported just as cheaply.

There are three first-class passenger coaches, and one mixed (first and second); three second-class passenger coaches; and one baggage-car. On the electric section, there are three electric locomotives, weighing $15\frac{1}{2}$ tons each, with 4.55 horse-power G.E. motors to each locomotive; and two first and two second-class passenger coaches, with 2.55 horse-power G.E. motors on each car. All the rolling-stock is fitted with Westinghouse air-brakes of an extra heavy design, adapted to bring the cars down with safety on the 6 per cent. grade of the electric division. The freight rolling-stock is similarly fitted, and consists of forty-two cars, with a capacity of 15 tons each, divided between box and flat cars.

The character of the freight handled is of general merchandise, imported into Bolivia through Peru, from Europe, and from the United States, and Peruvian products, such as sugar and kerosene. For export, the line also carries copper and tin ores, hides, cocoa, and the natural products of the country.

The workshops of the railway are situated in Guaqui,

and contain most of the usual machinery for running a line of this character. Both British, French, and American machinery is to be found, the former including two Premier gas-engines, made at Sandiacre, near Nottingham, and which are pronounced excellent specimens of their kind, having yielded very good work from the very first day they were started—that is to say, six years ago. These engines are 400 developed horsepower, 380 maximum. In the power-house the accumulators, supplied by a London firm, cannot be declared very satisfactory, however, and I am informed that they have proved unsuitable and troublesome in the extreme. The accumulator cells, 780 in number, have been supplied three in parallel, making 260 complete cells, whereas they should have been supplied in but one. The cells are of a capacity of 450 ampère hour. The dynamo is supplied by the Lancashire Dynamo Company, of Trafford Park, Manchester; while the General Electric Company, of the United States, is responsible for the remainder of the equipment.

The electric cars which are used upon the short section between the Alto and La Paz are made by Brills, of Philadelphia, U.S.A., who are responsible for most of the electric traction and horse-drawn tramcars all over South and Central America, having practically no competitors, the electric equipment being supplied by the General Electric Company. So powerful is the electric locomotive, which weighs $15\frac{1}{2}$ tons, that it possesses a pushing capacity of 35 tons gross weight up a grade of $6\frac{1}{4}$ per cent., this weight being made up of three passenger coaches, each weighing 10 tons, with passengers and baggage weighing an additional 5 tons. Many engineers might be inclined to doubt whether a locomotive of this capacity could perform such work; but I am prepared to say that it can, for I have seen it done under my own eyes.

That the business of the Guaqui-La Paz Railway is steadily increasing, especially under the present management, can readily be observed from the following statistics, for which I am indebted to the General Manager (Mr. Pierce Hope). The traffic returns from January 1, 1907, to December 31, 1909, were as follows :

	Passengers carried.	Cargo and Baggage carried.
January 1, 1907, to June 30, 1907 ...	25,111	21,149 tons.
July 1, 1907, to December 31, 1907 ...	39,457	26,245 „
January 1, 1908, to June 30, 1908 ...	36,717	25,143 „
July 1, 1908, to December 31, 1908 ...	39,690	29,227 „
January 1, 1909, to June 30, 1909 ...	43,871	22,662 „
July 1, 1909, to December 31, 1909 ...	54,623	24,183 „

The Peruvian Corporation formerly held this railway under lease from the Bolivian Government, and by way of rental 30 per cent. of the gross traffic receipts was payable to that Government until June 30, 1911, after which the rental was to be increased to 40 per cent. of the gross receipts.

The same steady progress was shown throughout the full twelve months and was continued during the following year, the figures for 1910 being as follows :

	1909-10.			1908-9.			Difference.			Per Cent.
	£	s.	d.	£	s.	d.	£	s.	d.	
Gross receipts ...	72,582	10	8	69,236	19	5	+ 3,345	11	3	+ 4.83
Working expenses	47,293	3	7	54,358	2	4	- 7,064	18	9	- 12.99
Net receipts ...	25,289	7	1	14,878	17	1	+10,410	10	0	+69.97

The great question which was being discussed while I was in Bolivia, not alone in that Republic, but by those who are interested in the Peruvian Corporation and its holdings in Peru, was the future of the Guaqui and La Paz Railway. Under ordinary circumstances, the lease granted to the Peruvian Corporation

expires in 1914; but, inasmuch as the Government of Bolivia was indebted to the Corporation for the amount of £220,000, representing money advanced by the bondholders for the construction of this line, it was considered more than probable that the Government would consent—as indeed it did—to cancel the indebtedness by selling the railway out-and-out to the Corporation. With regard to the question of the purchase price to be paid, the Government proposed to ask the sum of £400,000, and offered to transfer the railway for a sum in cash and a cancellation of its indebtedness to the Corporation of the aforesaid sum of £220,000. Intrinsically, perhaps, the Guaqui and La Paz Railroad might have been at that time worth £400,000; but it was doubtful whether the Corporation would be inclined to pay that sum. That it would be prepared to offer an amount not very much less was, however, possible; and, as a matter of fact, it obtained it for the sum of £374,912 7s. 9d., and took over entire possession of the property on July 15, 1910. The Corporation was in a very strong position, since the Government of Bolivia could not, and probably would not, try to manage the railway on its own account, bearing, in fact, the view that native attempts to both construct and manage railways have hitherto proved expensive failures.

It was somewhat unfortunate that the relations between the Government and the Guaqui and La Paz Railway management were not of the most friendly nature, and, eliminating from consideration the purely personal element, the Railway Company had had but little reason to feel thankful to the Government for the attitude which it had for long assumed towards them. The hope is more in the future, however, and in the person of the new President, who will come into office in a very short while. Colonel Montes, who has already served as President for one term, is likely to be the new

Elect, and he is well known to entertain strong predilections, not alone in favour of foreign railway enterprise in general, but towards the *personnel* of the Guaqui and La Paz Railway management in particular.

There is one additional and no less important fact to remember, and that is: should the Peruvian Corporation have failed to become possessed of the Guaqui and La Paz Railroad, it would of a certainty have been purchased by the Antofogasta and Bolivia Railway Company, which is already a powerful factor in the transportation arrangements of this part of the world, while it is likewise possessed of an energy and capability in regard to its management second to none on the part of any railroad enterprise in the world.

The Peruvian Corporation had all along been alive to the possibilities which would attend upon the acquisition of the Guaqui and La Paz Railway, and now that the Corporation has proved to be the purchaser of the line, a long-contemplated era of new construction will commence. Not only will the line be relaid and re-equipped for a greater part of its length, and, in all probability, the electric-traction section abolished in favour of steam traction, but a new through line will be built around Lake Titicaca, which will then give this railway an uninterrupted run from the port of Mollendo to the city of La Paz, without the necessity of any transshipment such as has to be carried out at present. The length of line for the contemplated Lake Titicaca section would be 220 kilometres, and it is estimated that it could be built for £5,000 per kilometre. No hopes are indulged in that this new section of the railway will prove immediately remunerative from a freight point of view, but its value as a through connecting-link has already been demonstrated.

Under these circumstances, it will be possible for the Guaqui and La Paz Railway to introduce a schedule of

freight rates which would compare favourably with any which could be offered by either the Antofogasta and Bolivia Railway, or the now being constructed Arica-La Paz Railway. Should the latter line stop at Viacha, and not go straight into La Paz, as the contract calls for (which is very improbable), the Guaqui and La Paz Railroad would benefit materially, since it would carry, although only over a short haul of 22 kilometres, all the traffic of the new line from Viacha into the Bolivian Capital. Such an arrangement would serve a double purpose, inasmuch as while it would bring fresh grist to the mill of the Guaqui and La Paz Railway, it would also obviate the duplication of the line from Viacha into the Capital of Bolivia by the Arica-La Paz Railway. To effect this, however, it would be necessary to obtain the mutual consent of both the Bolivian and Chilian Governments.

Another of the Corporation's railways is that of Paita-Piura. The previous year's business on this railway was encouraging, showing an increase of almost 6 per cent. in passengers and 2 per cent. in goods carried. With the settlement of the question between Peru and Ecuador, the Corporation may reasonably look forward to more traffic pouring over this line, the product of most importance being cotton. While it is always difficult to forecast a crop of either cotton, sugar, maize, or rice, so much—nay, everything—depending upon the weather, judging from the new areas under cultivation, there is good reason for indulging in the belief of a good year. The following are the returns upon this railway for the last year's trading :

	1909-10.			1908-9.			Difference.			Per Cent.
	£	s.	d.	£	s.	d.	£	s.	d.	
Gross receipts ...	31,881	10	3	30,653	4	5	+1,228	5	10	+ 4·01
Working expenses	17,391	3	2	17,617	10	6	- 226	7	4	- 1·28
Net receipts ...	14,490	7	1	13,035	13	11	+1,454	13	2	+11·15

There are three small lines managed by the Corporation—namely, Paita to Piura, 97 kilometres in length; Salaverry to Trujillo, 76 kilometres; and Pacasmayo to Guadalupe, 96 kilometres. Each of these lines is profit-earning, and each shows an increase in its net receipts over the figures of the previous year.

Paita possesses special importance, in view of the contemplated construction of a third Trans-Andine Railway, which is projected, to cross the northern region at 5° south latitude. According to this plan, this railway would unite the port of Paita with a port on the River Marañon, thus placing the Pacific Ocean in direct communication with the finest and most navigable river in the world—the Amazon—and at a point from which there is free and easy navigation throughout the entire year. In order to deal more expeditiously and more economically with the shipment and discharge of freight at Paita, the Corporation has now procured a motor tow-boat, which has proved a very great success. The Corporation has also constructed a large irrigating canal in the Chira Valley on behalf of the Peruvian Government, which is destined to have an important bearing upon the whole of the territory round about, and which is served by this railway. A high tribute has been paid by the Peruvian Government to the admirable manner in which the Peruvian Corporation has administered the Paita-Piura Railway, the regularity of service being one of its main features.

Pacasmayo is another port of the Republic which is undergoing a great transformation in regard to development of the surrounding country, and already an important extension of the Pacasmayo to Guadalupe Railway has been carried out—namely, that known as the Chilete extension, which was only opened for traffic towards the end of 1909. The cost was close on to £160,000. The new work is justifying itself day by day,

a greatly increased amount of business accruing to the railway in consequence of the extension. It is interesting to note that in the month of February, 1909, the Peruvian Government granted to the Corporation a new lease of the Pacasmayo mole for a term of twenty-five years, at a rental for the first five years of 20 per cent. of the gross receipts, the rental increasing in subsequent periods of five years to 23, 26, 29, and 32 per cent. respectively, the Corporation undertaking, within the first two and a half years of the term, to execute all necessary repairs and alterations to the mole in accordance with approved surveys. In return for this, the Corporation is entitled to amortise the expense by the appropriation quarterly of 1 per cent. of the Government's share of the gross receipts, together with an interest at the rate of 5 per cent. per annum.

A notable improvement, exceeding 100 per cent., was recorded in connection with the working of the Pacasmayo and Guadalupe Railway. This is due to the longer haul now possible to Chilete, the extension to which point was an obligation imposed upon it by the Government in the settlement of 1907. The most important traffic over this system is rice, of which the harvest was last season more than ordinarily abundant. Other freight which indicated an increase was composed of firewood, sugar-cane, hay, and live-stock. The following figures show the movements effected :

	1909-10.			1908-9.			Difference.			Per Cent.
	£	s.	d.	£	s.	d.	£	s.	d.	
Gross receipts ...	19,235	9	5	17,591	9	8	+1,643	19	9	+ 9.34
Working expenses	12,044	1	2	14,157	3	2	-2,113	2	0	- 14.92
Net receipts ...	7,191	8	3	3,434	6	6	+3,757	1	9	+109.40

The Trujillo Railway is a sugar-carrying line, the last two years proving particularly good ones from a sugar-

crop point of view, the railway showing an appreciable increase in its net income. The present year being an equally, if not indeed a more promising one for the sugar industry, the railway's profits are expected to be even better. The net receipts for the year 1909-10 were £19,362 5s. 7d., an improvement amounting to £1,402 13s. 6d., or an increase of 7·80 per cent.

The Chimbote to Tablones Railway is a line of 57 kilometres in length, which had hitherto been worked at a loss; it is decidedly improving, even if slowly. A London Syndicate holds a concession from the Peruvian Government for the construction of a railway from this port (Chimbote) to Caraz and Recuay, which, if carried into effect, will result in increased business for the Corporation's line (see p. 196).

Although not quite so prosperous as the Pacasmayo-Guadalupe line, the Chimbote Railway still showed a very encouraging amount of progress for 1909-10. This result was achieved in the face of both goods and passenger traffic falling off to a considerable extent. The subjoined figures show the position of the line :

	1909-10.			1908-9.			Difference.			Per Cent.
	£	s.	d.	£	s.	d.	£	s.	d.	
Gross receipts ...	5,767	3	0	5,349	18	9	+417	4	3	+ 7·79
Working expenses	4,830	13	3	4,862	3	7	- 31	10	4	- 0·64
Net receipts ...	936	9	9	487	15	2	+448	14	7	+91·99

While all the railways under the management of the Corporation are being maintained in an excellent state of repair and efficiency, the very strictest watch over expenditure is being exercised, with the result that there is now no leakage and no extravagance, every department being made responsible, and the whole being under the direct supervision of Mr. W. L. Morkill in Peru, and the Directors in London. If the figures which

have latterly been presented to the shareholders are not particularly encouraging, considering the immense interests which the Corporation holds, there is every promise of improvement for this year (1911); and, provided peace in the country be maintained, for many subsequent years. The amount of cotton and sugar grown in the Republic is increasing steadily, if not sensationally, and the revenue which is derived from these sources shows a steady increase. Such traffic conduces materially to the prosperity of these railways, but another most important asset is the transportation of minerals. By far the largest proportion of the business done by the Central Railway is that of carrying the copper ore from the Cerro de Pasco Mines on a long haul of 220 kilometres. The output from these remarkable mines is increasing annually, and it will probably not be long before the Central Railway finds its resources taxed to provide for the many mineral trains which it has to run.

Although the price of copper is low at the present time, so rich are the mines that they can afford to increase their output, even at lower selling prices than those at present in force. One thing, however, must be considered, and that is that as the Cerro de Pasco Company is increasing its smelter plant, there will be less mineral ore, if more copper bars, for the Central Railway to carry; but it will be a long time before any question can arise of a cessation of copper ore being shipped, and the railway is at present enjoying the fruits of a good contract of 10,000 tons per month.

A satisfactory feature in connection with the Central Railway is the reopening of the smelter at Rio Blanco in combination with the development of some property at Casalpaco and at Morococho. This smelter, which has hardly been worked for more than two or three weeks since it was erected, has so far been a dead and

costly failure, a result which has proved as disappointing to its proprietors as to the Central Railway, which at one time had hoped much from its construction. The whole of the district round about is likely to undergo development, for it is known to be rich in minerals, and only needs the assistance of capital to develop them. This capital will surely be forthcoming when the investing public appreciate the importance of Peru as a producing country, and when they have learned something of the favourable opportunities which it offers.

The best piece of news which the shareholders in the Peruvian Corporation will learn from the forthcoming Annual Report, to be issued in December, is that Mr. W. L. Morkill has entered into a further contract to serve for five years as Representative in Peru. This may be regarded as a most valuable asset, since Mr. Morkill is not alone a highly successful manager, but enjoys the esteem of everyone in Peru, from the President downwards.

CHAPTER XVII

Railways (*continued*)—New construction—Contemplated extensions—
Iquitos-Paita Railway—Importance as a transcontinental line—Lima
railways—Lima Light, Power, and Tramway Combination—North-
Western Railway of Peru—Chimbote line.

THE new railway construction programme at present in hand is a fairly considerable one, and, should it be brought to fruition in its entirety, will give Peru between 2,000 and 2,500 miles of railway by the end of the present year (1911). Branch lines already run from Lima to Ancón, and from Oroya to Huancuyo; and an extension is almost completed to Ayacucho. From here onwards it is intended to extend to Cuzco, thus linking up the connection with the Southern Railway. The whole of this part of the line runs high up in the elevated valleys of the Andes, several thousand feet above the level of the sea; and it will open up some well-known mineral districts, such as Huancavelica, where some valuable cinnabar deposits have been located. This portion of the line has necessitated very heavy rock-work and a large number of bridges being thrown across deep gorges and low-running rivers. The rolling-stock is particularly interesting on account of the fact that oil-burning locomotives, constructed upon American principles, but turned out from British shops, are employed.

Another railway enterprise is a link to the Cerro de Pasco line—which belongs to the mining company of that name—which will connect up the capital with the rich provinces of the Ancaza valleys, where are situated the vast and practically untouched rubber



SARACOCHA LAKE.



GLACIER ON MOUNT VILCAÑOTA (CENTRAL CORDILLERA); CUZCO EXTENSION OF THE SOUTHERN RAILWAY.



forests of Iquitos. Yet another project, which might even be described as an alternative one, is an extension of the Peruvian Central Railway from Oroya to Tarma, and thence to the Ucayali River. Should such a line be constructed—and it would undoubtedly prove a very difficult and expensive one—it would give access to the forests of the *montaña*—in extent almost unlimited—whence a supply of magnificent timber could be drawn for use in the mines, where, owing to the formation of the country rock, an immense amount of timbering has to be carried out. At present all the timber for the purpose is brought from Oregon, in the United States, and, as may be believed, this proves of a very costly nature by the time it is delivered at the mines.

Additional new railway construction proceeding in Peru at the time of writing is the Huacho extension to Lima, and which is making so much progress that the contractors promise that it shall be ready for opening in January next (1912). The completion of this line will mean much for the surrounding districts and the productive valleys of Supé, Huara, Chancay, and Carayullo, since it will bring them into connection with the Metropolis and all the commercial centres of the country.

The Peruvian Corporation propose a line from Urcos, one of their stations on the Southern Railway near Cuzco, to the head of unobstructed navigation on the Madre de Dios River, which is one of the principal tributaries of the Amazon. The country through which this line would pass is believed to be extremely rich in minerals, forests, and agricultural wealth; moreover, the great rubber-producing zone would be brought into much-needed railway communication. The Corporation hold the choice of constructing this railway at any time within three years after the completion of the survey, and the survey has not been made yet. Engineers are, however, now *en route* to undertake it, and I believe

that the Corporation will have the line built and in running order before very long.

A railway is also projected in connection with the navigable waters of the Amazon River, a preliminary contract for which has been entered into with a German syndicate, of which the well-known firm of Arthur Koppel, Berlin, is the head. This construction may serve to regenerate the port of Paíta, and would open up the immense northern territory of Peru, which at present is practically a desert, so far as population is concerned.

The port of Paíta (see previous Chapter) is the safest of the Republic's ports on the West Coast. By connecting it with the navigable River Marañon (otherwise the Amazon), direct communication will be obtained with Europe via Pará. The distance of the route from Paíta to Marañon will be about 700 kilometres. The sum of £3,000,000 is mentioned as that which will be expended upon the construction; but I fancy that this will be insufficient, and it may have to be augmented by another 10 per cent.

The advantages arising to the trade of the Republic from such a railway would include an additional outlet for its European commerce, the easy transport of supplies to Iquitos from the coast, and a journey to Liverpool via Pará of eighteen days' duration, instead of fifty days! Naturally, the Government is very desirous of seeing such a route opened; and the President, in discussing the project with me upon more than one occasion, evinced the liveliest interest in its completion, which, if it merely depends upon His Excellency's wishes and efforts, will undoubtedly be consummated.

In anticipation of the completion of the Panama Canal in 1915, this railway, to be built from Iquitos, on the Upper Amazon, to the northern Peruvian port of Paíta, has already been compared in importance to the

Cape to Cairo Railway, for it will undoubtedly put the rich rubber-growing region of equatorial South America within twelve days, via Panama, of New York. Besides this, a vast district in Upper Peru, a country destined to be one great wheat-field, will be opened up.

The Government of the Republic has granted the concession, and guarantees interest at the rate of 6 per cent. annually on the capital invested, besides giving the concessionaires more than 3,000,000 acres of fertile land on either side of the line. And a significant point is that the new railway is to be built with German capital, the concessionaires being, as mentioned, of that nationality. The entrance of German capital into the field of railway investment in South America is an evidence of a new policy, of a wider outreaching, on the part of Germans, and doubtless they will continue to push forward in various ways, besides trading, in the vast southern continent.

When Mr. Henry Meiggs, the well-known American railway engineer, built his great and famous railway into Andean Peru, his engineers performed some remarkable work, and took the line over an elevation of 16,000 feet. The new railway will not have to go so high, for it will avail itself of a great depression in the Andes where the highest point is about 7,000 feet; and, if a tunnel through the mountains is made, as is contemplated, the elevation will be reduced to 5,000 feet.

The Department of Fomento have recently authorized a survey of a new railway from the City of Ica, in the Department of the same name, to the village of El Molino.

The railway development of South America, considerable as it is in some regions, is really in its infancy, and there remains to be accomplished work that will keep engineers and capitalists busy for more than a century. The reward will be great, for a continent that will easily

support 800,000,000 people, a continent of surpassing natural wealth, is to be exploited in the interest of progressive civilization. Railways in South America will, moreover, make for political stability, which is always an important consideration.

The Lima railways are among the oldest-established foreign enterprises in Peru, the original Company owning them having been in existence for nearly fifty years. The Company was registered in 1865 to acquire and work two railways of about nine miles each, held under concessions from the Peruvian Government, the term of the concession for one line being for ninety-nine years, from 1851, after which it reverts to the Government; while for the other line it is held in perpetuity, and there being no monetary guarantee attached to either concession. Latterly the Company has been realizing some portion of its possessions, having disposed of its Encarnación property for the sum of £30,730, of which £2,250 has been applied in purchasing the redemption of debenture stock, leaving a balance of £28,480 under the conditions of the trust deed for a further redemption of stock. This redemption relieves the net revenue account from the corresponding charge of interest, and increases the amount available for distribution on the shares.

I may point out that this Encarnación sale was only arrived at after considerable difficulty, and its consummation was at one time imperilled, owing to the unsettled conditions prevailing in Peru, and the negotiations had to be temporarily abandoned. The Company is still left with the two sections of the railway which are leased to the Associated Electrical Companies (Lima Light, Power, and Tramways Company), under which arrangement a sum of £15,000 is received per annum. The Lima Railways Company has also been fortunate in getting rid of a serious competitor upon the Chorillos

section of its line, through the purchase of this competing business by the Associated Electrical Companies (its own lessees) above referred to.

The gross receipts for the year ending June 6 last were £15,905, while the expenses came to £2,077 in Lima, and to £1,489 in London. When all charges had been deducted, the net profit amounted to £5,811 1s. 5d., which, added to the former balance of £1,872 9s. 4d., left a sum available for dividend of £7,683 10s. Altogether, 3s. 6d. per share, being equivalent to $1\frac{3}{4}$ per cent., was paid to the proprietors free of income tax, and the small sum of £683 10s. has been carried forward. There is every chance of the present year proving sufficiently successful to enable the directors hereafter to declare a dividend of 2 per cent.—an earnest of better things to come—all of which may be regarded as proof of an improved condition of things. It may be accepted that the prospects of the Lima Railways are particularly bright at the present time.

The Lima Light, Power, and Tramways Company (Empréas Electricas Asociádas) is a Company formed under the laws of Peru, and it works the following group of lines: Ferrocarril Urbano de Lima, which is an electric tramway of about 33 kilometres of single track, running through the principal streets of Lima—the number of passengers carried last year exceeding 17,000,000—and the Tranvia Electrica de Lima y Chorillos, a light electric railway, about 25 kilometres of single track, running in conjunction with the above-mentioned Urban tramway, and connecting the city and its suburbs, Miraflores and Barranca, with the seaside resort of Chorillos. Last year it carried over 3,000,000 passengers. The Ferrocarril Electrico de Lima y Callao, which is a light electric railway of about 3 kilometres of single track connecting Lima with Callao, the principal port of the country, and serving

also the town of Callao and its small suburb La Punta (the passengers carried last year exceeding 3,300,000), is likewise comprised within the group; as are also La Compañía Nuéva Tranvia Electrica, which is a tramway built to compete with the Tranvia Electrica de Lima y Chorillos, but which, as stated above, was bought out by the *Empréas Electricas Asociádas*—the number of passengers carried last year exceeding 800,000; the Lima Railway Company, Ltd., an English concern, which has leased its business to the Lima Light, Power, and Tramways Company, and which runs a line from Lima to Chorillos; and, finally, La *Empréa Electrica de Santa Rosa* (Electric Light Company of Santa Rosa), which owns the power-stations, supplying electric current required for the tramways, railways, lighting, etc., of Lima, Callao, and Chorillos, and their suburbs.

It will thus be seen that this Company has a solid and valuable property, and, if I except the Lima Gas Company, it has no competitors. As a matter of fact, even this latter concern cannot be recorded as a competitor, since the greater part of the share capital is held by the Lima Light, Power, and Tramways Company, who thus control the charges made. In regard to the financial condition of the enterprise, it may be said that the share-capital outstanding amounts to £1,350,003, together with an issue of £1,200,000 of 5½ per cent. first mortgage debenture stock.

The North-Western Railway of Peru holds a concession, dated December 12, 1906, for the construction of a railway from Lima to Savan via Huacho, with branch lines to the ports of Huacho and Chancay, both of which are situated upon the Pacific Coast of Peru, in the Province of Lima. There can be no doubt about the ultimate value of such a railway, for the main line will run from the capital to a rich and hitherto undeveloped district. The total length of the main line, which is

to be a 3-foot gauge, is to be $253\frac{1}{2}$ kilometres ($158\frac{1}{2}$ miles), with the necessary double tracks and sidings. The ports of Chancay and Huacho are to be connected with the main line by short branch lines, the length of that to Chancay being $12\frac{1}{2}$ kilometres, and that to Huacho 120 kilometres. At both these ports suitable station accommodation is to be provided for the efficient handling of the traffic. Construction work was commenced towards the end of 1909, and by September 30, 1910, some 71 kilometres of earthworks had been completed, including three-fifths of the surface work of the whole line. Since then further considerable progress has been made, while the bridge over the River Huacho has been erected, as well as the bridge over the River Chancay. This latter construction has eight spans of 15 metres each, and is altogether an excellent piece of work.

The capital of the Company is £600,000, divided into ordinary shares of £1 each, and there is a first mortgage debenture issue amounting to £996,600. The Company is in the enjoyment of an annual guarantee from the Peruvian Government for thirty years of £49,830. The Government has not only consented to pay this, and which amount covers entirely the interest on the debentures, but has undertaken to make good losses incurred during the thirty years referred to in the working of the railway. I think this act may be regarded as a proof of the abundant goodwill entertained by the Peruvian Government to foreign enterprises of a reputable character.

The Cerro de Pasco Railway is a line constructed primarily for the purposes of the important mining company bearing the same name. It has a length of 82 miles, and crosses the famous Juan Pampa, or plain, one of the most interesting spots in South America, and, moreover, of historical interest, inasmuch as it was

the battleground of Simon de Bolívar, where he and his army and the allied army, composed of Peruvians and all the various neighbouring countries, defeated the Spaniards on August 6, 1824. A description of the town of Cerro de Pasco will be found in Chapter XXII.

A railway from the Pacific Coast to the Ferrobamba mines may be constructed in the near future. The London Company owning the mines, which are situated in the Province of Cotobambas, Department of Apurímac, came to loggerheads with the Southern Railway management, which has the only line running anywhere near the mines, because they could not agree upon the terms under which the extension from the Cuzco terminus and the mines at Ferrobamba should be built, and the rates to be charged for carrying down the ore to the coast (at Mollendo). Thus the Company, if it remains in English hands, will build the line on its own account. It is suggested that the starting-point shall be at the port of Lomas, and that the line shall then traverse the wild and desolate pampa of that name—and where absolutely nothing in the way of traffic can be expected—following along the left bank of the Acari River to the Amato ranch, cross the river, and continue to San Pedro, in the Province of Lucanas. Thence it will pass through the Quilcotà pampa, and proceed to the town of Pampachirri, Province of Andahuailas, descending the canyon at that point, and touching at Talavera on the Apurímac River, again crossing the river and reaching Ferrobamba. The entire distance from Port Lomas to the mines would be about 100 leagues (300 miles), and the maximum grades are estimated at from 3 to $3\frac{1}{2}$ per cent.

Although, as indicated, passing through unproductive territory for a portion—the greater portion—of the route, the railway would, on the other hand, touch near the coal deposits of San Pedro, San Juan, Chilques,



REMARKABLE SAND DUNE, NEAR LA JOYA (ON THE SOUTHERN RAILWAY).



WAVES ON THE BACK OF A SAND DUNE (PASSED ON THE SOUTHERN RAILWAY)

and San Cristóbal, all in the Province of Lucanas. Likewise it would pass through the gold, silver, and copper mines of Querobamba. The estimated cost of the railway is \$6,000,000, say £600,000.

Should the strong American syndicate, which already holds practical control of the Ferrobamba mines, acquire them eventually, the line will still be constructed.

An important new undertaking is the Peruvian Pacific, or, as it is known locally, the Chimbote-Recuay Railway, a length of about 168 miles in connection with an English Company—the Chimbote Coal and Harbour Syndicate, Limited (see p. 223). The first section of the line was to have been completed and opened by July, 1909, but for some reasons the work was stopped, and the line is still incomplete. In this matter the Government behaved uncommonly well, and much more liberally than many—I might even say, most—Latin Governments would have done under the same circumstances. As the terms of the contract were by no means complied with, the concession *ipso facto* became null and void; but so far from acting upon this advantage, the Government not only continued the concession and renewed it from time to time, but returned to the concessionaire, Mr. F. J. Shafer or his successors, a considerable portion of the amount which had been deposited as caution money. No doubt the line will be finished by someone at some time, since its completion means opening up some very rich coalfields, as well as an entirely new agricultural and wheat-growing area of land.

The three extensions which the Peruvian Corporation have now in hand—viz., the Sicuaní-Cuzco, the Oroya-Huancayo, and the Yonan-Chilete, to all of which I have already made some reference—will be built, I understand, well within the estimated prices, which amounted for the three undertakings to something over £1,127,000. The estimated price was £1,130,000.

CHAPTER XVIII

Shipping—Principal ports—Panama Canal effect—Steamship lines—Improved foreign services—Freight—Peruvian Steamship Company line—Rates in force—Further new routes—Coastal services—Government subsidies—Benefits from American railway connection—British shipping—Latest statistics—Port of Callao—Iquitos—Docks—Railways—The town.

IN spite of its immense coastline, extending over 1,200 miles, the Republic of Peru cannot be said to be possessed of more than three good ports, and these are rather in the nature of open roadsteads—namely, Paíta, Callao, and Pisco. There are also the ports of Pacasmayo, Trujillo, Salaverry, and Etén, and a number of small inlets at which vessels of a certain tonnage are in the habit of calling at regular intervals.

The principal Pacific ports for the collection of customs dues are as follows: Paíta, Etén, Pacasmayo, Salaverry, Callao, Pisco, Mollendo, and Ilo.

The northern shores are mainly long and melancholy-looking stretches of rocks and sand, while, in the southern part, one sees high promontories rising abruptly from the shore, the waters of the numerous inlets having an average depth of 100 to 120 metres. Owing to the absence of good harbours, the large ocean-going > boats must lie outside, where there is an almost continual and sometimes aggravating swell, becoming upon occasions so violent as to prevent the lighters and small boats from approaching the vessels. Thus, it is most desirable that there should be some substantial amount of capital found for the construction of good harbours, and I am glad to say that something practical is being

done, and by a British concern, to improve the landing and loading facilities at the important port of Mollendo. Of this enterprise I speak more fully when I talk of the undertakings connected with the Peruvian Corporation (see p. 199).

There can be no question that, with the completion of the Panama Canal, which event may reasonably be looked for by the stipulated time—namely, January of 1915—there will be an immense increase in the South American West Coast trade. All the ports from Panama downwards will participate in this revival of coastwise activity, and it is satisfactory to observe that the more intelligent portion of the trading and shipping community in Europe is fully alive to the possibilities which will open up before them, with the result that arrangements are being made to increase the number of vessels calling, as well as to improve the services generally.

Compared to the existing Pacific services between San Francisco and Panama, mainly in the hands of the Pacific Mail Steamship Company, one of the most autocratically managed and most deservedly unpopular lines to be found in the Southern Hemisphere, the lines south of Panama are no doubt regarded as exceptionally good. But if they be judged by any other standard of merit I am afraid that some would be found lamentably wanting, both in regard to efficiency, punctuality, and the charges which the practical absence of competition enables them to levy upon shippers and passengers alike. A change is now coming over the situation, however, for which, as I have said, the impending opening of the Isthmian Canal is directly responsible.

The principal business men of Peru have also been active in the matter of providing additional steamship service, and of recent years a number of the most prominent and wealthy among them formed a local company known as the "Compañía Peruana de Vapores

y Dique del Callao." The subscribed capital is £300,000, but the Company had authority from the Supreme Government to issue bonds up to an additional £350,000, all of which has been or will be expended upon building a fleet of thoroughly up-to-date vessels, which will be capable of meeting the present and prospective demand of the coastwise traffic, and yet yielding a fair commercial profit to its incorporators.

The Company are no longer working upon the basis of the published tariffs of existing lines as a maximum charge for passengers and freights, but are making their own rates both for passengers and freight. No sooner was the new Company formed than it met with the cordial support of nearly all the commercial community, as well as that large class of passengers who are continually passing up and down the coast, and most of whom have at some time or other suffered from the rapacity and incapacity of some of the existing steamship lines.

Early in August of this year (1911) the Company proposed to establish a fortnightly fast service between Panama and Valparaiso that will make the voyage between Callao and Panama in ten days, under the six-day quarantine regulations now in force, and when a four-day limit can be given them the Company propose to reduce the time to eight days. About the beginning of next year the Company hope to give a weekly fast service. This will reduce the time between Valparaiso and New York to thirteen to fourteen days either way. The new service will so reduce the time between New York and Buenos Aires, via Valparaiso and the Transandine Railway, that all the mails for Argentina will be forwarded via the Isthmus, Valparaiso, etc., in sixteen to eighteen days, whereas at present the quickest route, by the new "Highland Line," is one of twenty-three days.

One of the first actions of the newly-formed Company

was to order a floating self-docking dock, and, after a good deal of competition between contractors in Europe and the United States for the construction of it, this dock was built by Messrs. Swan, Hunter, Wigham, Richardson and Company, Limited, of Wallsend-on-Tyne, England. The stormy voyage to South American waters has gone down into history as one of the most remarkable on record, and it needs no further comment in testimony to the solidity of the dock's construction. The passage through the Straits of Magellan and its eventual arrival at Callao on March 2, 1909, would form a subject for an interesting and exciting Clark Russell romance. The dock is a conspicuous success, and is capable of lifting a ship weighing 7,000 tons in two hours.

The charges made for the services of the floating dock are as follows :

Steamers of 400 tons or over : first day, 45 cents per gross ton ; for each of the following four days, $33\frac{1}{2}$ cents per ton ; for each subsequent day, $22\frac{1}{2}$ cents.

Sailing vessels of 400 tons and over : first day on dock, 27 cents per gross ton ; each of the four following days, $13\frac{1}{2}$ cents per ton ; and each subsequent day, 11 cents per ton.

Tonnage in all cases is gross registered tonnage, and is charged for in accordance with "Lloyd's Register." Special rates are in force for docking war-vessels, steamers and sailers under 400 tons gross register.

The steamers built for this Company, which enjoys an annual subsidy from the Peruvian Government of £30,000 for twenty-one years from 1910, are admirably suited to the West Coast trade. They were originally intended to make the voyage from Callao to Panama and *vice versa* under four days, but a quicker passage is actually on record. At present there are several steamers, each 400 feet long over all, 46 feet beam, and 23 feet 9 inches depth of hold, with gross tonnage of

3,800. The boilers have been constructed to burn oil fuel, but these have not proved as satisfactory as was hoped, and experiments with them are still being carried on. The vessels are fitted with turbine engines of sufficient power to give an average speed of 18 knots at sea with loaded ship, and to carry 120 first-class and 100 second-class, together with the usual number of deck passengers. I understand that as high a speed as 21 knots has actually been attained, but the commercial speed at which they will be run is 16 knots. The builders of these vessels are Messrs. Cammell, Laird and Company, Limited, of Birkenhead.

This Company now possess the five fastest boats on the West Coast of South America, the fleet being as follows: *Mantaro* (put on the route in February, 1911), *Urubamba* (put on in March), *Pachitea* (about June), and the new *Huallaga* (in place of the vessel bearing the same name, which was burnt in July, 1910), which is expected to be on the line about the month of October of this year. A fifth vessel belonging to the same Company is the *Ucayali*, which was one of the first to be constructed. I may mention that the insurance upon the *Huallaga* which was lost, and which was covered for £105,000, was paid in full.

According to the latest agreement made by the Government, a subsidy is to be paid annually to the Peruvian Steamship Company for the use of the five new boats which have been constructed, and which are to be converted, as it may become necessary, into five auxiliary cruisers, thus greatly increasing Peru's naval power in the event of war.

The other principal steamship companies which are doing business on the West Coast are the Pacific Steam Navigation Company, Limited, of Liverpool (now amalgamated with the Royal Mail Steam Packet Company), and the Compañía Sud-América de Vapores, of

Valparaiso. These concerns have long worked hand-in-hand, arranging their sailings in such a way as to make alternative calls at all the ports between Panama and Callao, and between Callao and Valparaiso; while the vessels of the first-named Company proceed to Europe through the Straits of Magellan.

Another West Coast line is the Kosmos Company, a German concern, but one which has for years past built up for itself a reputation for unpunctuality, which is little less than discreditable, the sailing dates being a subject *pour rire* owing to frequent and erratic changes. There has been practically no dependence to be placed upon the departure or arrival dates of Kosmos boats, and much inconvenience as well as occasional pecuniary losses have been suffered by those who have had *faute de mieux* to use them.

The amount of competition for freights on the West Coast was very keen before the advent of the Compañía Peruána, and in the present state of affairs there is scarcely sufficient freight to go around. The freight charges also are still sufficiently high to keep shippers from booking space very much in advance, the hope always existing that rebates or rate-cutting of some kind or other will be offered by one Company in order to filch away the carrying business from another. The same kind of cut-throat competition has been observed in regard to the Central American ports, where the Pacific Mail Steamship Company, the Hamburg-American Steamship Company, and the Kosmos Line are, and for some years past have been, in keen competition.

There is yet another line of German steamships, known as the Roland, which, like those of the Kosmos, make monthly voyages to European ports (Havre, Antwerp, Hamburg, and Bremen), as well as to the Straits of Magellan. These steamers make runs, more or less punctually, along the whole western coast of the

Pacific Ocean, proceeding northwards as far as San Francisco, calling at Panama and the principal Central American and Mexican ports. The steamers of the Merchants' Line also serve the Peruvian coast trade as far as the eastern ports of the United States. The two British Companies, the Booth Line and the Red Cross Steamship Company, carry a good deal of the international trade for the Peruvian region of the Amazon River, despatching one of their steamers monthly from Liverpool and another from New York to the Peruvian port of Iquitos. The Japanese Steamship Company, "Toyo Kison Kaisha," and a Chinese Company conduct the service from Callao direct to the principal ports of Japan and China, carrying the mails for the East. There are several companies of minor importance which carry on a more or less regular service with small steamers up and down the coast of Peru.

The Lamport and Holt and Gulf Line steamers call regularly at Callao from Liverpool and Cardiff, proceeding with cargo to Guayaquil, in Ecuador. The Merchants' Line (or New York and Pacific Steamship Company), owned by Messrs. Grace Brothers of London, New York, Valparaiso, and Lima, as well as the Barber Line, have a regular service from Chilian and Peruvian ports to New York. Sailing vessels which arrive at Callao generally bring grain or coal from Australia, grain and lumber from Puget's Sound, and general cargo from Europe; but this class of craft is gradually diminishing, and Callao is ceasing to be a sailing-ship port.

It is not without interest that shippers on the West Coast of South America have heard of the proposed new route with its connection at Buenos Aires and overland to the Pacific, to be undertaken by the Pacific Steam Navigation Company, which has determined upon taking this bold step after about ten years' meditation.

There are those in Peru who remember clearly the days when the east and west coasts of the South American continents were literally "seas asunder," and while some of these have not visited Europe from the day they arrived in Peru, some thirty and forty years ago, they are none the less interested in the promised evolution of shipping arrangements in which they are likely to participate to the fullest extent. To-day the drills and picks of the engineer have pierced the Cordilleras in one direction, and are rapidly proceeding to pierce it in another; while, as I write, a scheme is being discussed for the construction of a railway to run from Iquitos, in Peru, to the Pacific Coast by way of a tunnel through the Northern Andes.

Iquitos is a Peruvian port situated some 2,600 miles up the River Amazon from the coast, but in the most northerly portion of this Republic. It has a population of about 12,000, and its chief export is rubber. Steamers, drawing up to 23 feet, make monthly trips to Iquitos from the Pará end, occupying nearly thirty days between Pará and that port, most of the boats belonging to the lately disbanded British concern known as the Amazon Steam Navigation Company, Limited.

In July last a new concern, called the Amazon River Steam Navigation Company, was registered, with a capital of £300,000, and which purchased from the old company a great part of its flotilla. None of the names of directors upon the old Board are found upon that of the new; consequently, one may assume that the last-mentioned enterprise is an entirely independent one. The head office, instead of being in London, will be in Pará, with a branch office at Iquitos.

At Iquitos there is a floating mole, alongside which the shallow-bottom stern-wheel steamers plying on the River Amazon can moor; and it is now suggested that one terminus of the railway should be placed here and

the other at Guayaquil, the only sea-port of Ecuador. If ever this scheme comes to maturity—and, in view of the now improved political relations existing between Peru and Ecuador, it seems probable—the combined rail and steamship service would shorten very considerably the journey to Europe from Guayaquil and the adjacent Pacific Coast territory.

Iquitos is by far the most important port north of Callao which the Republic possesses, and of late years it has developed amazingly. Its population can now be barely less than 30,000, and although I have not lived there for any length of time myself, I understand from those who have passed as many as from twenty to thirty years at the port that existence is not only quite “endurable,” but, when the hot winds do not prevail, “extremely pleasant.”

The town, which is fully tropical, overlooks a broad expanse of turquoise-blue water, often of an exquisite topaz hue when seen in the brilliant sunlight, and presenting the appearance of a small land-locked sea. But it is merely the mouth of a river, although three miles in breadth, and it possesses a charming little island of its own. So deep is the water that ocean steamers can come up and anchor at the port, the depth available being 25 feet at low water, and twice that amount in the summer (that is, the rainy) season.

Iquitos is the recognized centre—might one not say the clearing-house?—for all the rubber which finds its way down from the Peruvian forests to the European and American markets; while it is also the northern Customs port for the Republic; and hundreds of thousands of pounds' worth of valuable merchandise pass annually through its Customs House. For last January (1911) the receipts amounted to £15,519, as against £10,431 for the same month in the previous year. The whole of the commerce of the important



THE DOCKS AT THE PORT OF CALLAO.



THE PORT OF IQUITOS; RIVER STEAMERS WHICH PLY OVER 3,000 MILES.

Department of Loreto passes through the Iquitos Customs, while a thriving trade is carried on between the small river steamers bringing up consignments of rubber from, and taking back supplies to, ports as far away as Pará in Brazil (a distance of nearly 2,650 miles). Among the British lines of steamships which travel here are the Booth Line, of Liverpool, bimonthly trips being made between England and Peru; the Iquitos Steamship Company, Limited, of Liverpool; the Red Cross Line, which runs monthly steamers; and some New York "tramps." All seem to do a flourishing trade.

The total tonnage of British shipping during 1909 amounted to 15,104 registered tons, as compared with 11,927 tons during 1908. There were twelve steamers of 13,868 tons for Liverpool and other European ports and two steamers of 1,236 tons for New York. The exports from Iquitos consist of hides, vegetable ivory, tobacco, Panama hats, and *par excellence* rubber. Altogether for the year mentioned (the last figures officially certified as accurate) the export trade amounted to 2,552,066 kilogrammes, as against 2,385,152 kilogrammes in 1908. The importance of Iquitos as a Customs collecting-station may be seen from the following figures for 1909:

	Number.	Value.	Duties.
Importation (packages) ...	285,642	£573,270	£89,811
Exportation (kilogrammes)...	2,522,066	£951,956	£60,260

When the railway—already commenced—to connect the Pacific Coast with the Upper Ucayali River is completed, the importance and prosperity of Iquitos will be doubled. This line starts from Cerro de Pasco, to which point a line already exists (see p. 226), and reaches the river at Pucalpa, about four days' journey above Iquitos by steamer. Vessels of about 200 to 300 tons, but of

light draught, can reach here at any time of the year. The line should be open for traffic next year (1912).

As for public buildings, Iquitos has its unambitious share. There are a capital public hospital, a college, and a small but very comfortable little theatre, constructed of corrugated-iron sheets, and which will accommodate 1,000 people. I cannot, however, compliment the Municipality upon the general condition of the streets, which are always uneven and badly paved, and frequently anything but clean. But with the growing prosperity of the town these drawbacks will no doubt disappear. Anyone who remembers Panamá five years ago, and who sees it now, will recognize what *can* be done with a tropical town when the authorities are willing and capable.

Another matter of importance in connection with the Peruvian coastal service is a new weekly express itinerary, which has been established on the Southern Railway between Mollendo and La Paz, which will eventually connect with the steamships calling at Mollendo, and greatly facilitate the arrival and departure of Atlantic-bound vessels—an innovation which will work advantageously for those firms having headquarters at Callao and Lima.

These, however, are not the only notable additions made or contemplated in connection with South American transportation. The opening of the Panamá Canal, and the termination of construction of the railway-line down from New York along the East American coast to Buenos Aires, are to have a rival in the Old World itself in the contemplated line of railway down the West Coast of North Africa, the completion of which will be of incalculable advantage to South America, bringing it within three days' journey of the Old World.

The new project, it is proposed, will have its origin at Gibraltar, where the European railway systems will, by means of a 10-mile car ferry, cross the Straits of

Gibraltar and connect with new railroad about to be built, starting at that point in North Africa, and extending down along the coast to either Bathurst or Dakir, both of which ports would make a suitable terminus for the railway. The distance from Gibraltar to Bathurst is less than 1,900 miles, and from Bathurst to South America across the Atlantic is a further 1,500, making a total of 3,400 miles; and the entire journey would occupy from five to six days. The scheme is being planned by a Spanish company, and, on account of national rivalry and jealousy, usual in undertakings of this description, it has been decided to give it an international aspect. The estimated cost to carry out the contemplated scheme will reach £27,000,000.

Owing to the deterrent factors which have already been referred to, the maritime traffic carried on by Peru for the last few years has been decidedly unsatisfactory; and while, perhaps, showing a limited advance upon that of the previous years, it falls far short of what one might expect of a country occupying so fine a coastal position and with such magnificent productive resources. There can be little question that in a few years' time the arrivals and sailings from the port of Callao, which is bound to feel the beneficial effects of the Panama Canal more than any other port in South America, will mark a decided advance, and will serve to probably double the commercial and shipping figures of to-day.

Glancing at the statistics which were provided for 1905 and 1906, it seems that Great Britain was at that time far ahead of all other countries in regard to the tonnage of the steamers coming to Callao. In the latter year—namely, 1906—the arrivals showed for Great Britain 507,309 tons, and the sailings 502,876 tons, her nearest competitor being Germany, with 172,063 tons arrivals, and 182,608 tons sailings. Chile came third, with 168,272 tons arrivals, and 170,070 tons sailings.

Both France and Norway showed considerably higher results than the United States, which, indeed, marked a most astonishing falling off in both arrivals and sailings. In 1905 the United States recorded 9,450 tons arrivals, and 8,708 tons sailings; while in 1906 these fell away to 3,420 tons, and the sailings to 2,678 tons.

It is interesting to Britishers to know that the United Kingdom still occupies the principal position in shipping, the British vessels touching at the port of Callao amounting to more than double those of any other country. Of late years Germany has entered into keen competition with the coasting service of this port, Teutonic boats making a fortnightly call from Valparaiso and intermediate ports to Callao, and *vice versa*, and having introduced a through service, with an immediate cut of 50 per cent. on the old rates. The following figures will give an idea of the shipping at Callao for the years 1908-09, which, unfortunately, are the latest figures available.

Nationality.	1908.		1909.	
	Vessels.	Tonnage.	Vessels.	Tonnage.
British :				
Steam	239	626,190	250	741,547
Sailing	5	9,672	6	10,549
Chilian :				
Steam	108	186,554	109	194,680
Sailing	4	2,046	2	140
German :				
Steam	81	269,387	83	285,441
Sailing	3	5,138	1	1,457
French, steam... ..	10	32,242	11	34,097
Dutch, steam	1	2,588	—	—
Norwegian :				
Steam	—	—	4	9,420
Sailing	1	977	5	6,333
United States, sailing... ..	5	5,476	6	4,137
Japanese, steam	3	9,442	3	10,154
Peruvian, coasting	9	6,719	4	3,245
Total	469	1,156,331	484	1,301,200

For the year 1909 the British steam-vessels which entered and cleared in the foreign trade of the port of Callao were as follows :

STEAM VESSELS ENTERED.

From—	With Cargo.		In Ballast.		Total.	
	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.
United Kingdom	71	229,317	2	130	73	229,447
Coastwise ...	35	86,620	5	3,666	40	90,286
Argentina ...	—	—	1	2,948	1	2,948
Chile ...	57	148,672	12	17,168	69	165,840
China ...	1	3,222	—	—	1	3,222
Colombia ...	1	2,999	—	—	1	2,999
Ecuador ...	9	25,662	—	—	9	25,662
Mexico ...	—	—	1	244	1	244
Panama ...	27	64,287	—	—	27	64,287
United States ...	23	58,174	—	—	23	58,174
Total ...	224	618,953	21	24,156	245	643,109

Those vessels which cleared during the same period amounted to an aggregate of 209, representing 583,774 tons of cargo, of which the United Kingdom claimed thirty vessels, with a tonnage of 121,699. Of the vessels in ballast, and which amounted to an aggregate of thirty-six, with a tonnage of 59,153, there were no British bottoms. Of the twenty-five sailing-vessels which entered, nine were of the United Kingdom, with a tonnage of 14,287; and eleven were Australian, with a tonnage of 15,319. Of sailing-vessels clearing with cargo there was only one, and that belonged to native owners.

Looking at the comparative list of the shipping of all nationalities which entered and cleared in the foreign trade of the port of Callao, for the period mentioned (1909), there were 224 British vessels out of a total of 496, which represented an aggregate of 618,953 out of the total tonnage of 1,161,732.

The port of Callao, which is one of the most important on the West Coast of South America, receives, on an average, some 400 steamers and 1,020 sailing-ships in the course of each year, in addition to an immense number of native-owned smaller craft devoted to the coasting trade. On balance, there are always anchored in the port some twenty steamers and forty sailing-vessels. The port is provided with a fine dock, which at the same time serves as a wharf, and bears the name of Muelle Dársena. The inside measurements of this wharf are 250 metres in length by 250 metres in width, covering a surface of more than 50,000 square metres. One of its side-walls is projected a further 180 metres in length, and provides an additional dock, while the whole is connected with the shore by means of a bridge constructed upon iron rails, and extending 900 metres in length. Previous to the arrival of the self-docking dock, which I have described already, there had been in use a floating dock, which admitted vessels of 25 feet draught and 500 tons displacement, as against the new dock, which will lift a vessel weighing 7,000 tons in two hours.

Next to Callao, the most important port for British vessels is Mollendo, and here, out of a total of 460 steam-vessels, representing a tonnage of 275,339, the British claimed 74,547 tons. In regard to sailing-vessels with cargo, the British and the United States stood on a par so far as the number of vessels was concerned ; but the former represented a total tonnage of 10,549, as against 4,137 of the United States. The sailing-vessels clearing from this port were very few, numbering only four with cargo, and twenty-two in ballast ; and out of these the British claimed eight, with a tonnage of 15,481, and the United States six, with a tonnage of 4,137.

The Customs receipts at this port in 1910 amounted to £797,867, the largest sums collected in one month being £84,343 in June.

It is from Mollendo that practically all of the Peruvian rubber is shipped from the Pacific side, and the commerce carried on is of great importance. For the past year (1910) the shipments in this product alone were as follows: Peruvian rubber, fine, 1,680 *quintals* (1 *quintal* = 100 pounds), or, say, about 84 tons; Concho, 4,164 *quintals*, or about 208 tons; Bolivian rubber, of all classes, 280 tons. The export trade from Mollendo, which has been worked up with some energy in opposition to the shipments via Iquitos and Pará to Europe, is not likely to be benefited by the imposition of the import duty of 8 per cent. *ad valorem* which came into force on July 1 last (1911) (see Appendix). Attempts were made to induce the Government to modify this tax, but unavailingly. No tax, however necessary, has been imposed by any Government upon any single article, but petitioners have been found to demand its withdrawal. Sydney Smith, the great wit and essayist, was right when he declared that there are men "who prefer any load of infamy, however great, to any pressure of taxation, however light."

Improved shipping facilities at the coastal ports of Peru comprise the construction of a new port in the Matárami Bay, north of Islay, and a railroad connecting it up with Mollendo, and thus with the Mollendo-Arequipa Railway branch of the Southern Railway. The Peruvian Corporation have this matter in hand, and a period of three years in which to carry it out. The port of Iquitos is already experiencing much advantage from a recently opened line from that port to Motonacocho. Incidentally, it may be mentioned that this line is one of the most picturesque, and the station to which it runs one of the most popular in the vicinity of Iquitos.

CHAPTER XIX

Textile trade—Raw materials—Cotton production—Capital employed—Woollen factories—Matches and flour—Japanese competition—Striking enterprise—Lima Electrical Trust—Sugar machinery—Copper-mines machinery—Waterworks equipment—Taxation of commercial travellers—Correspondence between Birmingham Chamber of Commerce and Foreign Office—Irrigation enterprise and machinery.

ALTHOUGH Peru has of late years undoubtedly made a decided advance as a manufacturing country, it is hardly likely for some years to do much more than use up its own raw materials ; but these it should be enabled to turn out in fairly large quantities. I cannot see that the Republic can ever become practically independent of foreign manufactures, as, for instance, Mexico is becoming. The textile industry is, however, one of the few exceptions, and already a considerable difference in the amount of imports from Great Britain, Germany, and the United States of America in regard to cotton, linen, and woollen goods, is to be noticed. The raw material is produced locally, both cotton and wool, and the qualities are in most cases quite equal to the best American or Egyptian that I have seen. For some hundreds of years wool and cotton stuffs of primitive manufacture have been woven in the country, but the introduction of modern looms has resulted, as it has done in India, Mexico, and elsewhere, in the establishment of a number of factories, most of which are doing uncommonly well.

I believe that the first loom erected in Peru for the weaving of cotton goods was in 1874, a woollen factory,

however, having preceded it by some seven years. To-day there are seven or eight manufactories of cotton goods, five out of which are established upon the outskirts of the capital, and the others at Arequipa. The largest establishment is known as the Forga, and at the present time it is making all classes of grey goods. The same sort of stuff is being produced by the Malatesta Mill at Ica, where there are 100 looms; by the Progréso, with 200 looms; the San Jacinto, with 100 looms; the Victoria, with thirty-three looms; the Vitarte, with 359 looms; while the Inca Cotton Mill turns out, with its 450 looms, all kinds of bleached goods. There are no printed cotton goods produced in the country, owing to the expense of introducing the costly pattern-rollers and the limited market for such classes of manufactures. The principal supplies of these goods still come from Manchester, which stands a long way up on the Imports List. The United States, however, have come forward in a remarkable manner as a producer of cheap and attractive-looking prints, the natives of all these Latin-American countries preferring such articles on account of their brilliant colourings and generally prettier designs to those of any other country.

How greatly the cotton industry has progressed in Peru may be judged from the fact that but five years ago the total trade amounted to between £250,000 and £300,000, whereas for the past eighteen months it has reached £1,200,000 exported.

From the figures which have been supplied to me, but for the accuracy of which I do not vouch, there are being produced in Peru to-day some 35,000,000 yards of stuff from the native looms, principally of grey domestics, which are in good demand, not only in the markets of Peru, but also in those of Bolivia, mainly on account of the raw material of which these goods are made being of a much higher quality than that usually

employed. The factories are also turning out in greatly increased quantities ravens-duck, drills, cashmeres, towelling, etc., but up till now there has been no attempt to make madapollams. As a consequence of this activity in native manufacturing circles, the importation of grey domestics from Great Britain, Germany, and the United States are diminishing proportionately. In 1909, cotton textiles were imported to the value of £493,885, and woollen goods to the value of £201,624.

The total capital, much of which is foreign, invested in these establishments may be placed conservatively at £500,000. In all probability, this sum will be materially added to during the present coming years, since there are several factories about to be erected in different parts of the country. The machinery employed is almost exclusively British, since it is recognized that the cotton and woollen machinery from Manchester and the neighbourhood is the best and most efficient to be met with anywhere. Such firms as Brooks and Doxey, Limited; Hetheringtons; Josiah Angove; Barlow; and Platt Brothers cannot be excelled. Their looms and spindles may be seen installed in every part of the world, from India to Japan, and from China to Peru.

There are only four woollen factories at present in the latter country, the most modern being the Santa Catalina, in the Maranganí District of Cuzco. Here are also produced blankets and counterpanes of plain colours, while plant and machinery exist for the turning out of woollen shirtings, underclothing, etc. Some 800 employés find occupation here all the year round.

There is but one paper-making plant, and this limits its production to brown paper and ordinary kinds. An immense amount of such material is used here, especially in the Government printing offices, which are continually engaged upon official publications. I know of no Re-



CERRO AZUL : FACTORY BELONGING TO THE BRITISH SUGAR COMPANY, LTD.



SAN MIGUEL COPPER MINE, MOROCOCHA (ON THE CENTRAL RAILROAD).

publican State which turns out such an amount of useful official literature as Peru ; and the existence of an extraordinary number of newspapers, daily, weekly, and monthly, causes the supply of paper often to run very short. Paper manufacturers may take a note of this fact, and, by availing themselves of this intimation, form a new and important business connection with Peru for their manufactures. The value of imported paper in its different forms amounted in 1909 to £116,319.

There are two match factories, but the quality of the matches produced is poor. The importations into the country show very little diminution since the factories were established, the principal sufferer being the Match Company of Chicago, under whose auspices the Lima establishment was founded. Various soap and candle factories exist in different parts of the country, the demand for the last-named articles being extremely large, as in most Catholic countries. The candle industry is heavily protected. Perfumery is not made to any extent, although very generally used by both sexes, the increase in imports under this head from the United States, Germany, and France, with a small amount from Great Britain, showing up strongly. The value of the perfumery imported in 1909 was £30,406, and of ordinary soaps £24,931.

Under the protection of differential duties, there have been established in Peru several flour-mills, most of the equipment coming from the United States, and some from Messrs. Simons and Sons, of Manchester. Much excellent wheat is grown, and of late shipments of Peruvian wheat have been sent down the coast to Chile. But a considerable importation is also being carried on—namely, from California and Australia. The Santa Rosa Mills are about the best equipped in the country, and here are turned out large quantities of flour of a high class ; while the factory of Arthur Field and Com-

pany, another American enterprise, produces biscuits. There are also lard manufactories, the annual consumption amounting to some 5,000 tons, much coming from the United States. All the same, over 30,000 fat hogs are sacrificed annually towards this total consumption of lard. Numerous tanneries are established, but the processes employed are old and ineffective. There is room for a thoroughly up-to-date establishment of this kind. Of breweries there are also several, the principal one being that of the Backus and Johnston Company, which, originally started in 1879 by two enterprising Americans, is now the property of an English Company. The enterprise has been the scene of a wholesale, and no doubt wholesome, clearing-out process, the entire staff being given some few years ago the "order of the boot," and a completely new one installed. The results have been eminently satisfactory, for, instead of losing money, as was formerly the case, the brewery is now coining it. The installation is practically all American, but some modern boiling-vats and other machinery—notably, the ice-making plant—are German.

In this Republic, as elsewhere in South America, old-established houses are meeting with serious competition from the enterprising and ubiquitous Japanese. A notable instance of this is to be recorded in relation to the Backus and Johnston Brewery above referred to. Almost from the commencement of the Company's career it had obtained its bottles from Germany, it being impossible to manufacture glass in Peru owing to the absence of the necessary sand and other ingredients. Some two years ago the Company received an offer from a Japanese factory to make any kind and number of glass bottles suitable for the beer brewed by the firm, and at a price which would "defy competition." The Company somewhat sceptically invited the Japanese to submit samples and prices, and in the course of a very

few weeks these latter arrived. They proved to be not only admirably made, but of such a novel design as to enable the bottles to be packed as closely as sardines, and in the same manner—"head to tail." Thus, breakages are almost unknown, the percentage, I understand, being less than one-quarter of 1 per cent. The glass is remarkably clear, tough, and smooth on the exterior. The price works out, inclusive of all packing in strong wooden cases, and as neatly made as the bottles themselves, with freight from Yokohama to Lima, at just 20 per cent. less than the German price. Inasmuch as the brewery is using, even in its slack season, some 100,000 bottles a month, and in the course of the year uses over 2,000,000 bottles, the immense saving effected is clear. The Japanese factory has now received the entire bottle custom of the Backus and Johnston Brewery Company, notwithstanding the fact that the manager of the concern is a German, with the natural prejudice of all Teutons in favour of his own countrymen's manufactures.

Perhaps one of the greatest fields of industry opening up in Peru to-day is that in connection with electricity, and here I foresee an immense opportunity for manufacturers of electrical plant and equipment. Some two or three supply companies already exist, but they can only be regarded as the pioneers of a commercial and industrial movement at present in its infancy. The initial enterprise established here was the Santa Rosa, with a well-equipped plant at about twenty-three miles from Lima, which city it supplies with light and power. The plant is capable of producing 10,000 kilowatts, which is equivalent to 13,500 horse-power, but not much more than one half of this amount is being supplied at the time of writing. Practically the entire plant has been provided by the General Electric Company, of Schenectady, New York. The same firm are responsible

for the equipment at the Cerro de Pasco Mines—an American enterprise—and I am given to understand that several other important contracts are in contemplation with the same Corporation.

The recent—or comparatively recent—formation of the Electrical Trust in Lima spells a specially active campaign in all matters of electrical traction and motive power for factories, etc. The Trust is the outcome of a combination—the Santa Rosa Company, the English Railways Company, and the Lima Tramways Company—all of which are now working under one central management, instead of, as before, cutting one another's throats in frantic competition. The total capital of this concern is \$21,000,000,* or, in English equivalent, £2,100,000. It is to be hoped that the Trust, being formed upon the same basis as the other United States combinations, will carefully eschew all the bad, and retain only the good, points of those unpopular institutions. There is one thing certain, and that is the South American public is not at all likely to submit tamely to extortion or tyranny of any kind. It has a sharp but effective way of dealing with impositions, whether they emanate from their own rulers or from foreign capitalists. The result of attempting any kind of bullying or arrogance upon the part of a public Company, as was witnessed in Bogotá, Colombia, when the United States-owned tramway Company sought to play the tyrant, is usually a "bad break" for that particular Company. The Latin-Americans are not quite so tame in these matters as are their northern brethren.

Manufacturers of sugar machinery, of mining equipment, and of railway supplies, should keep a careful eye upon the industrial development of Peru, which is likely soon to be in the market for large quantities of these as well as other supplies. The Republic is prac-

* 1 sol = 2s., or 50 cents. (U.S.A.).

tically free from debt ; its immense natural riches are attracting the attention of capitalists in both Europe and the United States, and the spirit of enterprise among the people themselves is awakening to an altogether remarkable extent.

With regard to sugar machinery, I may repeat that out of the forty or fifty different coastal plantations which exist, and the majority of which are doing extremely well, not one has as yet installed a complete and up-to-date mill. The largest of these factories still retains machinery which bears the stamp of over thirty years ago, but the second largest mill has of late sent an order to Glasgow (Messrs. J. McNeill and Sons, Limited) for a complete eleven-roller mill. It is not too much to say that at least one-third of the remaining factories would be open to introduce modern machinery and plant if proper representations were made on the part of manufacturers, and if drawings, specifications, and prices for plants, delivered erected on the ground, were submitted. Peru, indeed, offers almost a virgin field for manufacturers of sugar machinery, and the demand for installations is growing as steadily as the industry itself, which to-day is probably more prosperous and more stable than at any time of its existence (see pp. 149-156).

As I have attempted to show in these pages, there are few countries in the world more naturally adapted to sugar culture than Peru, and the circumstances of its manufacture upon the scene of its growth are naturally much in its favour. All the irrigation is artificial, which is likewise to some extent an advantage, since, while additional labour and expense are involved, the plants being watered or left dry as occasion and discretion may dictate, it does away with all losses from an excess or otherwise of rain. For this reason the cutting of the cane takes place in the valleys on the coast without in-

terruption during the whole twelve months of the year. Thus, the mills are continually running, and, unlike the case of Brazil, for instance, where the machinery is lying idle for nine out of the twelve months, there is work all the year round. All classes of sugar are made—molasses, brown, granulated, and white—the qualities being, in my judgment, as fine as are to be found anywhere in the world. That the output has grown steadily during the past few years can be seen from the figures which are given on p. 157.

According to Mr. Cæsar Broggi, the Director of the Governmental Experimental Station, the total production for 1910-11 can be estimated at 165,000 tons =£1,000,000.

It will be observed that serious and successful efforts are being made to increase the cultivation of sugar in Peru, and there should be, therefore, an excellent opportunity for those firms which make a speciality of sugar machinery to extend the range of their business here. Of the existing plants, many—indeed, I may say most—are of an antiquated type, and a really animated and energetic representative might succeed in inducing many of the mill-owners to introduce more modern and effective machinery. Such firms as John Gordon, of London, and John Mason, of New York, both of whose manufactures are to be met with in all parts of Central America and in Brazil, are very little known out here, the best-patronized manufacturers seeming to be the Liverpool firm of Fawcett, Preston, and Company, Limited, some of whose sugar machinery I have seen working, after being in constant use for between forty and fifty years.

But equally favourable opportunities exist in Peru in connection with other industries. For instance, the Ferrobamba Copper Company, Limited, which owns some remarkably rich copper deposits in the Province of Cotabambas, will in a short while be requiring a plant

and equipment valued at £350,000, and which will include a complete smelting plant, a powerful steam shovel, electric traction, and transportation equipment and material for a contemplated construction of some 250 miles of railroad from the mines to the coast. The Company is, at the time of writing, a British one, and would, so long as it remained under entire British control, give preference, as I understand, to British manufacturers of all kinds of supplies and equipment. But it is possible that American control may come about hereafter, in which event, very naturally, all necessary equipment and material would be purchased in the United States (see p. 234).

Another Peruvian undertaking which will shortly be in the market for equipment and supplies will be the Arequipa Electric Tramways Company, an enterprise which is about to be floated on a sufficient but modest capital (probably in Paris), to bring about the organization and amalgamation of the present horse tramways, electric-lighting plant, and telephones for the whole city (the second largest and most important in the Republic) and neighbourhood. It is intended to equip the system with the most modern type of cars, and to buy such in the most favourable markets. British manufacturers will have thus an opportunity of competing for a contract valued at some £380,000.

Yet a further enterprise offering opportunities for contractors and manufacturers is the construction of waterworks for the city of Arequipa, as well as a complete system of drainage for the town. For this, British contractors would be doubtless preferred to any others, since the principal South American Republics generally have adopted British waterworks installations, and in all such cases with complete success. Contractors may be strongly urged to communicate at once with Señor Berninzoni, of the Banco Italiano, Arequipa, Peru, who

is one of the principals concerned in all of the above-mentioned Arequipa undertakings, and who is personally strongly in favour of employing British co-operation in carrying out their development.

I may say also that there is an opening for light railways upon some of the existing sugar estates, of the Decauville and Kerr-Stuart type. As more estates are opened up and the planting area extended, as it is being day by day, there will be a great deal of this light-railway plant and equipment required.

Another branch of industrial progress which is to be noted in Peru is the irrigation of the country, and here there is a good chance of meeting with orders from the Peruvian Government and private corporations alike. While the country is possessed of a magnificent river system, including as it does the incomparable Amazon, Apurímac, the Urubamba, the Mantaro, the Marañon, the Huallaga, the Madre de Dios, the Morona, the Pastaza, and an extensive list of others, they are only partly navigable and are of a torrential character, running too swiftly and too deep down in their beds to be of present use agriculturally. Thus, irrigation upon an enormous scale is and will be hereafter resorted to. Already I hear of a vast Government enterprise of this nature, and which, if carried into effect, will necessitate a considerable outlay upon pumping and distributing machinery. The Government authorities are always open to consider any scheme or suggestion dealing with such matters, and manufacturers may take careful note of this.

Apart therefore from the opportunities to which I have referred as existing with regard to the introduction of modern machinery and equipment in sugar mills, there is a unique chance to-day for manufacturers of irrigation machinery and light railways, with their rolling-stock equipment, suitable for various estates. There is a pronounced demand for ploughs worked by a traction



SAN LUIS, FROM CASA BLANCA.



CALLAO DOCK : S.S. "UCAVALI" OF THE PERUVIAN S.S. CO.

engine. The results of the several trials which have been made already in this direction have, I understand, proved disappointing. The ditch-diggers which have been introduced have also shown various results more or less satisfactory. Some of the planters are using discs on their ploughs instead of shears, and many of them claim to have achieved fairly good results. Others employ markers on the double-mould board plough, which lays off the furrows, thus dispensing with a man and a team of oxen. What is also required very urgently upon Peruvian sugar estates is a successful weeder, the type now employed being found very unsatisfactory. Indeed, upon the majority of plantations there is needed a completely new and up-to-date installation of agricultural implements, such as may be found in other countries for other crops. Generally speaking, however, those sugar-estate equipments, where found, show a preponderance in favour of Scottish mill machinery, American locomotives and cane waggons, with British ploughs and weeders. The smaller agricultural implements, for the most part, come from the United States ; and there are several prominent firms established in Lima which act as agents for the American manufacturers—such, for instance, as the houses of Duncan, Fox and Company ; W. R. Grace and Company ; and E. Humphreys and Company.

Although Peru must be regarded as a country where exceptional taxation is in force, on account of financial necessities, it will, upon comparison, be found less seriously handicapped in this respect than certain European countries—Italy, for instance. The economic conditions of the Republic demand imposts of some kind. Wherever possible, these have been made as little onerous to foreigners as necessity would permit.

In the month of May last year (1910) the Government of Peru proposed to impose a tax of £50 upon commer-

cial travellers visiting that country, and a strong protest was at once made by the Birmingham Chamber of Commerce, and which drew the attention of the Foreign Office to the proposal, at the same time requesting that an objection should be lodged by the British Government.

Sir Edward Grey replied that the proposal, "as he understood it," was to impose a special contribution of £50 (and not £100, as his correspondent put it) for six months upon travellers representing firms not already established in Peru; and, he added: "The question of addressing representations on the subject was under the consideration of the British Government."

It is scarcely necessary, perhaps, to add that the question never went beyond the unsatisfactory stage of "consideration"; and, as a matter of fact, it was never raised diplomatically between the British Government and the Government of Peru. A sequel may be found in the following letter, which the Foreign Secretary courteously addressed to me on July 1 last in reply to my inquiries on the subject:

FOREIGN OFFICE,
July 1, 1911.

SIR,

With reference to your letter of the 24th ultimo, asking for information as to the tax which it was proposed last year should be levied on foreign commercial travellers in Peru, I am directed by Secretary Sir E. Grey to say that your statement, "that he informed the Birmingham Chamber of Commerce in November last that he was in communication with the Peruvian Government on the question," appears to be based on a misapprehension. The only letter on the subject from this office to the Birmingham Chamber of Commerce was dated May 14, 1910, and stated that, according to the information in Sir E. Grey's possession, the tax had not been imposed; though a Bill then before the Peruvian Congress provided for the levying of a "special contribution" of fifty pounds for a period of six months on commercial agents

visiting Peru, if they did not represent firms already established in that country.

I am to add that Sir E. Grey is not aware of the fate of the Bill, but he believes that it was dropped. Further inquiry is, however, being made.

I am,
Sir, etc.,

LEWIS MALLETT.

Those who are interested in this matter—and there should be many—would do well to peruse the various articles which have appeared from time to time dealing with the regulations for commercial travellers in foreign and Colonial countries in the editorial columns of the *British Trade Journal*—a publication which is of the utmost value to all who are interested in the country's industrial progress. This useful publication has upon frequent occasions since 1890 dealt with the subject, when a commercial traveller, who was acting as a correspondent for that journal, was arrested in Sweden. The Government has also issued from time to time various Blue-books, giving copies of the regulations in force, and these might also be consulted with equal advantage.

CHAPTER XX

Peruvian Trade and Panama Canal—Probable effect—Preparation by the United States and Germany—British indifference—Trade marks forgeries—Peruvian Government precautions—Opportunities for protection—British Empire League assistance—Foreign firms registered—Irrigation undertakings—Future development.

WHAT effect will the completion and opening of the Panama Canal have upon Peru and the five Central American countries? I have frequently been asked this question, and perhaps this is as good a place as any in which to answer it. That capital from North America will flow more abundantly into Peru after the completion of the great oceanic waterway is a practical certainty; but I do not consider that there will be any such augmentation of new industries, or that the difference in investments will be so prodigious in regard to results, as some enthusiastic critics imagine. For many years to come the United States, with its great area and its many undeveloped resources, will need more capital—much more, indeed, than it can conveniently find from among its own people; that is to say, it will have to borrow from Europe in addition to saving all that it can on its own account. The old world has nowadays fewer opportunities for industrial and commercial expansion; money is comparatively cheap; and all new countries on the other side of the Atlantic offer the inducement of higher interest.

How much of this investment will be made with purely American money? The Yankees are certainly becoming more and more enthusiastic, and at the same

(time more and more reckless, in their foreign investments, and especially in regard to Latin-American countries. Nevertheless, they have a long way to go before in actual figures they can in any way approach British foreign investments. In regard to the returns which their investments bring them also, they have on the whole proved far less fortunate. In all probability British foreign holdings in South and Central America to-day are well near the sum of £500,000,000 (\$2,500,000,000), and upon this gigantic amount of capital they earn a fair average of $5\frac{1}{8}$ per cent. per annum, allowing for the higher and the lower rates of interest paid (and amounting to anything between the 25 and 35 per cent. on some land-shares), down to the modest $4\frac{1}{2}$ and $4\frac{3}{8}$ per cent. upon Railway Debentures, and reckoning also the cases where no return is made upon investments.

I should say, on the other hand, that American foreign investments do not amount in the aggregate to more than £200,000,000 (\$1,000,000,000), and of this at least seven-tenths are invested in the Republic of Mexico and two-tenths probably in Canada. American foreign investments are in a large measure tributary to those great concerns located in the United States, which maintain their agents in foreign countries engaged upon looking after their interests. From this considerable amount it would be impossible to estimate a higher return than between $2\frac{3}{4}$ and 3 per cent., for while many of the investments—such as the Standard Oil interests in Mexico and the many banking concerns in Cuba, Panama, and other countries—yield a sensational amount of profit, so much original capital has been lost through rank speculation, and even more through dishonest management, while so little judgment has been displayed in the matter of sound selection, that a considerable portion of original capital has been irretrievably

lost. This has been the case in the Sonora district of Mexico (especially in the Cananea Copper Mines); in the gold and silver mines of Guanajuato, and in connection with the railways of Costa Rica, Guatemala, and Ecuador, so that what has been made on the one hand has, to an appreciable extent, been almost entirely lost on the other.

Thus I do not anticipate any very pronounced "rush" of American capital into Peru or the neighbouring Republics merely because the Panama Canal will have become *un fait accompli*. On the other hand, the United States trade and commerce must derive an immediate and lasting benefit from the speedier means of transport. Already the United States control 30 per cent. in Peruvian imports, 60·8 per cent. of the importations into Mexico, and 89 per cent. into Panama; something over 70 per cent. into Costa Rica, and about 60 per cent. (increasing year by year) into Guatemala. With the active assistance of the Washington Government, in conjunction with the compulsory financial "assistance" forced upon them by the Morgan Syndicate, Honduras will also shortly be receiving about 80 per cent. of United States goods, as well as much United States capital.

It is, however, the Republics of Peru, Ecuador, Bolivia, and Chile which will become better markets for the United States through the medium of the Panama Canal; and while I was travelling recently upon the West Coast of South America I observed the arrangements which were being made to handle this anticipated increase of trade with all efficiency and despatch. North American agents were busy opening up new branches or appointing local agents to handle the goods intended to be consigned in increased quantities. German houses, already established, were also rearranging their branches and remodelling their order-books to deal with the expected increase in North American

trade, all of which proved that a very substantial belief exists in the approaching trade "boom" consequent upon the opening in 1915 of the Panama Canal.

What attention were or are British manufacturers and British agents paying to this all-important question? That question is very easily answered—*none!*

One of the greatest difficulties which British manufacturers have had to face in South and Central America has been the wholesale forgery of trade-marks, a practice which has been going on for many years almost, if not entirely, unchecked. Upon several occasions and from different parts of Latin-America I have called the attention of manufacturers, through the medium of the daily and weekly press, to the existing state of affairs; but, beyond expressing a mild kind of indignation at such proceedings, those individuals most concerned seemed to have taken no steps whatever to prevent this fraudulent practice.

Not only are manufacturers seriously affected, but the purchasing public are also deceived and cheated by a usage which has become as general as it has long been discreditable.

It was satisfactory, however, to find recently that at length some effort promised to put an end to this long-existing abuse. It was gratifying to South American importers of British manufactures to learn of the meeting which was held in London on March 16 two years ago to take steps to register a British Empire trade-mark. If the decision arrived at does not die of inanition (and I have not heard of any striking success having attended the project), as is not improbable nor without precedent for efforts of this kind, the steps proposed should prove of great benefit to British trade, especially in South America, where many of the best-known British-made articles are continually being copied and the best-esteemed trade-marks forged.

It speaks well for the Republic of Peru that as long ago as two years, without any suggestion emanating from outside sources, the Government of this Republic took steps to protect both the selling and purchasing public from the frequent imitation and falsification of foreign brands and trade-marks. In a special message the Supreme Government authorized all the Consulates having offices in the capital to accept directly from the owners of trade-marks applications for protection by registration.

The importance of this movement principally appealed to those firms who are without any direct representative in Peru. The passing of the new decree enables them to register their trade-marks without the intermediation of any third party, and with but very little expense and even less trouble. It may be mentioned that the Office of Industries, which is a sub-department of the Minister of Public Works, takes entire charge of the matter of registration, and sees that the necessary certificate, properly made out, can be handed over to the applicant. There is but one other stipulation to be observed, and that is that applicants for registration of trade-marks must make their requests written in Spanish. Those manufacturers who are unacquainted with the language can readily obtain from any translation agency a sufficiently accurate translation of their application, and this need only be forwarded through their Consulate Office to the Minister of Public Works at Lima. The fees for the registration are moderate enough, being as follows :

	£	s.	d.
For registration, including certificate	2	10	0
For official publication in newspapers	0	8	0
For necessary stamp paper	0	1	7

or a total of a little less than £3. The various Consulates are instructed to receive and to attend to all claims and complaints arising from the imitation or



PORT OF MOLLENDO. OLD WHARF.



THE PORT OF MOLLENDO: MOLE AND BREAKWATER IN CONNECTION WITH THE SOUTHERN RAILWAY.

falsification of registered trade-marks. The Peruvian Government undertakes to prosecute, and in the event of a conviction being obtained, to punish all violators of registered trade-marks and patents entirely at its own cost, without calling upon the owners of such trade-marks or patents for any contribution (see Appendix).

It would seem that the Executive Council of the British Empire League, which was responsible for the meeting above referred to held in London, had merely in mind the protection of manufacturers within the British Empire, and appeared to have left out of its consideration the many hundreds of manufacturers with houses in the Central and South American States, or shippers who carry on an important export business with these countries. If, as it was stated, it be eminently desirable that "a working basis should be found on which the Colonial manufacturers should share the benefits of a British mark," is it not equally desirable that foreign purchasers of goods, presumably British made, should not be deceived and defrauded, as has been the case for many years past? It would surely be within the province of the officers of the Register of British Manufacturers to take under the wing of their protection importers of British goods in the Latin-Americas. That such a movement would meet with the support and co-operation of all business men in those countries I have not the slightest doubt; and I would further suggest that the heads of foreign houses in these States be invited to co-operate, and some of them might even be requested to join the General Advisory Council, or act as corresponding members.

In any case, Peru is entitled to consideration and recognition for having been the first among the South American Republics to move in the direction of protection to foreign manufacturers doing business in this State. Already a large number of foreign firms have

availed themselves of the Government's suggestion, and each monthly issue of the official *Bolétin de la Direccion de Fomento* contains several pages of illustrated descriptions, and applications for registration, of trademarks, together with some admirably printed photographic reproductions of firms' labels. These are inserted entirely without charge to the owners. Among foreign firms who have availed themselves of this protection are many American houses, a large number of German firms, and several British houses. Among the latest establishments which have taken out patent registrations are the following: W. R. Grace and Co., of Lima; V. Rigaud, of Paris; Cavallero Hermanos, of Arequipa; Campodonico and Ventura, of Lima; L. I. J. Dittesheim, of Switzerland; El Progreso, of Lima; Debernardi Hermanos, of Lima; Manuel G. Masias, of Lima; Romeo Marchand and Co., of Lima; Compania Shinola, of New York; Santos Cabrerizo, of Lima; Juan Silva y Denegri, of Lima; The Cook and Berheimer Co., of New York; Eley Brothers, Ltd., of Middlesex; American Gramophone Company, of Bridgeport; Reckitt and Son, Ltd., of London; A. Dammert and Co., of Lima; A. W. Wills and Son, of Birmingham; Borden's Condensed Milk Co., of New York.

CHAPTER XXI

Guano industry—Early history—Remarkable return—Nitrate competition—Unworked deposits—Salt—Annual production—Petroleum—Principal districts—Early discoveries—Lobitos Oil-fields—Cocaine manufacture—Various processes followed—Difficulties encountered.

THE history of the guano industry is interesting from at least two points of view—one so far as it relates to its influence upon the former opulence of Peru (before the war of 1884 with Chile), and the other from the present position of the trade which is carried on in it. Where does the guano come from, and what does the name mean? "Guano," which is the Spanish rendering of the Quechua word "huanu," meaning excrement, is collected from a group of small islands known as the Chinchas, and which are located close to the coast of Peru. They appear to have been first exploited about 1840 by a firm of Peruvian merchants, who, having tested the substance as a fertilizer, sent a large consignment of it to England. Two years later the new agricultural assistant "caught on," and an immense trade soon sprang up. The interest of the Government was then aroused, and a special Commission was despatched to examine the islands and find out how much of the precious deposit existed.

I am informed by one who was—and still is—considerably interested in the Peruvian guano trade, that some of the islands which had apparently been inhabited by penguins, divers, cormorants, cranes, gannets, flamingoes, and numerous other seabirds, were at that time over 200 feet deep in this material. The estimate

formed of their possible yield was 12,376,100 effective tons. For sixty years they had continued to produce ever-increasing supplies, and taking the Chincha group in conjunction with other small detached groups, several millions of tons of the stuff have been shipped to Europe alone.

By 1877 it was estimated that fully 10,000,000 out of the original 12,376,100 tons had been taken away, and to-day the whole amount which Peru can collect and export annually does not exceed 60,000 tons, while perhaps half as much—30,000 tons—are used locally as manure. When first sent to Europe the guano fertilizer was disposed of at a fixed price; but later on buyers demanded a certified analysis, and prices depended upon the nature of this. The prevailing price which it fetches may be put at 19s. each unit per cent. per ton for the nitrogen, and 2s. 4d. on the same basis for the phosphoric acid. Some cargoes from Peru yield up to 11 per cent. nitrogen.

The deposits are only worked for one-half of the year, so as to leave the birds who provide it undisturbed to breed. The Government grants licences to work the deposits from April to October inclusive, but the exclusive right to export up to 2,000,000 tons has been granted to the Peruvian Corporation, Limited, who have enjoyed the privilege since the year 1890. During the several years that the Corporation have been working the islands they have exported about 1,100,000 tons of guano, each year showing a decline upon its predecessor. Last year (1910) the Corporation sold abroad 61,000 tons, which was less than the previous year by 23,000 tons.

About two years ago a native Company was formed, called *La Compañía Administradora del Guano*, and managed to secure permits from the Government to work the deposits for the purpose of supplying local

requirements ; but it soon came to loggerheads with the Peruvian Corporation, and the Government was then forced to intervene, deciding, with Solomonic sagacity, that the Corporation should be privileged to work all deposits north of Callao, and the Company all deposits south of that port, with the exception of the Ballestas.

The Government, in order to encourage the consumption of guano in the country's agricultural industry, and to facilitate the delivery of the fertilizer to consumers direct, and without the intervention of middlemen, authorized the small local Company referred to.

The returns from the guano deposits commence to figure in the Government's revenue accounts from about the year 1840. In the first seven years only about 289,000 tons were exported, the direct sale of which produced some \$2,700,000. The results were considered unsatisfactory, so an arrangement was arrived at with Messrs. Antony Gibbs and Co., of London, in January of 1847, to undertake the sale of the consignments for account of the Government. Several other European capitalists came into the deal, and altogether the sales were soon run up to 250,000 tons. Year by year the quantity increased, and indirectly brought Peru into financial relations with some of the most prominent capitalist groups, who afterwards took a practical interest in the country's monetary condition.

Between the years 1851 and 1854 the amount of guano exported amounted to 1,624,252 tons, which yielded the Government the sum of \$16,838,600. The annual sales now totalled 300,000 tons, thus leaving the revenue with several millions of dollars "to play with." By 1867 over 7,000,000 tons of guano had been taken away, and the Treasury was over \$220,000,000 in pocket. All these millions, however, disappeared in reckless extravagance, and not a little through dishonest management ; and even when the annual sales went up,

as they did in 1868, to 400,000 tons, the country was still plunged hopelessly in debt. Later on, as mentioned above, the Government, acting under legislative sanction, sold a definitive block of 3,000,000 tons of guano, granting to the purchasers (the Peruvian Corporation) the exclusive privilege of selling the article.

In course of time came the discovery of the equally beneficial agricultural manure of nitrate, which proved a formidable rival of the guano, the sales of which commenced to go steadily down. But more misfortune remained, and it seemed as if Peru's lucky star had indeed set. The war with Chile resulted in the loss of both her nitrate and some of her most valuable guano deposits. Since then other guano islands have been exploited, and the country still finds the returns from the exports of the manure acceptable; but the cream has gone, and only skimmed milk remains. Fortunately for Peru, which perhaps does not know even yet what extraordinary riches the territory contains, the mining wealth of the country is destined to prove an excellent substitute for the vanishing guano revenues, and no despoiler can come and rob her of that. The total value of the guano exported in 1909, as recorded at the Customs Houses, was £155,224.

The mining of salt is a monopoly, the business being carried on by the National Salt Company. During the last year (1910) this undertaking sold no less than 8,923,336 kilogrammes of salt, 1 kilogramme being equal, it may be remembered, to 2·204622 pounds. At present the Company works about 100 different deposits scattered about the country, the total value of the output averaging between £90,000 and £95,000. The following statistics will serve to show how the industry has prospered during the past ten years: In 1903 the value sold amounted to £38,044; in 1904, £53,462; in 1905, £61,294; in 1906, £64,726; in 1907, £81,223;

in 1908, £86,694 ; in 1909, £87,294 ; and in 1910, £93,238. For the first six months of the current year (1911) a further considerable increase has taken place.

The exploitation of the whole of the salt-mines of Peru meant, on the other hand, to the Government a revenue of nearly £220,000 for the year 1910.

Among all the excitement which prevailed in London about two years ago in connection with the "oil boom," few of the "boomers" seemed to be aware that in Peru is found not only the finest quality, but probably what will turn out to be one of the largest quantities of oil in the world. The mineral is found in the three northern districts of Tumbes, Piura, and Lambayeque. In nearly all cases the discoveries have been made on or near the sea-coast. The knowledge that the oil exists is certainly not of recent date, for as far back as 1692 we read of the Spanish Crown ceding the entire rights of working certain petroleum deposits to one Grandino, a Captain in His Catholic Majesty's Army. Apparently it was worked with some excellent profit, for it seems to have been handed down as an extremely valuable asset from generation to generation until it reached the hands of Señor Diego de Lama, who found it so profitable that he eventually divided the property into thirteen different parts among his children. One of these portions, covering the estates of Pariñas and La Brea, became the property of Mr. Herbert Tweddle in 1888, from whom it was purchased by the London and Pacific Petroleum Company.

The Nepitas, or Talara, Oil-fields were discovered several years ago. They are situated about forty miles from the coast, in the direction of Paita—considered to be the best port on the West Coast—and they are now the centre of some active operations. Talara has a well-sheltered little harbour of its own, and is connected therewith by a sixteen-mile narrow-gauge railway. Some

twenty-five miles inland is another very promising formation, consisting of a black and extremely adhesive material of an asphaltum nature. Very little has been done with this as yet. The Zorritos field lies about twenty-four miles to the south of Tumbes, and was discovered by De Lama in 1862. For many years it proved a costly failure, but the present owners seem to have been more fortunate, or are more intelligent, in working the deep sand, no fewer than fifty producing wells being found there.

The production of crude oil amounts to 11,000 tons annually ; 500,000 gallons of kerosene and 100,000 gallons of gasoline were refined in 1910. This year, I understand, the owners expect to add at least 10 per cent. to their output. The territory owned by the Company is an extensive one, amounting to the original 750 acres at Zorritos, and an additional 2,700 acres at Cabo Blanco, just north of the property belonging to the Lobitos Company.

The latter field was discovered in 1901 by the surveyors sent out by the Peruvian Corporation, but it was only some four years later that the property was found to be payable. The Corporation sold out its interests to the present owners, the Lobitos Oil-fields, Limited, who have 152 wells, including forty-two which were drilled at the time that the transfer of the property took place. Of these, ninety-two were producing oil at the end of last year (1910). The total depth drilled over the same period was 44,055 feet, giving an average of approximately $17\frac{1}{2}$ feet drilled per string per working day. The year certainly was not a fortunate one for the Company, the net results being 3,882 tons less than for the preceding year. Nevertheless, the net increase seems to have been higher at 24s. 11d. per ton, as against 20s. 8d. The net profits for the year amounted to £4,778. Further and fuller reference to the Lobitos Oil-fields,

Limited, will be found under the heading of " Foreign Companies " (see Chapter XXIV.).

Cocaine is another very remunerative manufacturing industry carried on in the Republic, and the plant from which it is decocted is found in the environs of Cuchero and upon the stony summit of Cerro de San Cristóbal. It is also cultivated extensively in the wild but very moist climate of the Peruvian Andes, at from 2,000 to 5,000 feet above the sea.

The extraction of cocaine from the leaves of the coca-plant as carried out up-country is not by any means an up-to-date process. It is, however, the only method available to the farmers at the present time, as, owing to the distance from any seaport or railway-station, they find it much the cheaper way to extract the cocaine at the point at which it is grown than to export the leaves in bulk. The only means of communication between the various ports and railways is by the pack-mule, and however crude the arrangement may seem, it is no doubt the best way out of the difficulty. When the means of communication are improved, the method of the extraction will improve also. At the present time to manufacture 1 kilogramme of cocaine, 200 kilogrammes of coca-leaves are required. The extraction is carried out in three operations: (1) Maceration, (2) intermediate precipitation, and (3) final precipitation. The three processes are carried out in the three parts of it, numbered I., II., and III. respectively.

Under compartment No. I. there are four tanks marked. In these the coca-leaves are placed. The pans are acidulators in which water and sulphuric acid are mixed in the proportion of 1,000 grammes to 5 grammes. This mixture is run off into one tank, sufficient of the solution being admitted at a time to cover the top of the leaves. Here it is allowed to remain for twenty-four hours, at the end of which time the liquid is run off into

another tank, and another supply of acidulated mixture is admitted into the first tank. The mixture is again allowed to remain for another twenty-four hours, when this is again drawn off into a third tank, the contents of the first being drawn off anew into the second one, and again a fresh supply of acidulated mixture being admitted into the first tank. This process is repeated until the first tincture at the end of four days is drawn off, the first tank then being charged with a fresh quantity of leaves; the others each in turn. After the end of four days the initial charge is ready, and every twenty-four hours thereafter whilst the plant is in operation the same quantity will be available. After leaving the last tank, the tincture is conveyed to a strainer, which takes away all particles of dust, etc. From this strainer the tincture is run off into cylinders. This ends the maceration process. The tincture is now ready for the intermediate precipitation.

This is carried out in another compartment, No. II. The boilers contain a solution of carbonate of soda (salinometer, 60°), and are connected by a line of pipes controlled by valves to the cylinders. The tincture now being in the cylinders, the valves are opened and the precipitation commences. Tests are continually made of this process. A small quantity of the mixture is taken out and strained through a funnel, in which is placed some filter-paper. The tincture filters through and passes down into a receiver, leaving the cocaine on the top of the paper. The liquid is then tested by the addition of ammonia, which indicates if the slightest trace of cocaine remains. If no cocaine is precipitated it shows that the quantity of the carbonate is correct; but if there is, the proportion of carbonate is altered till the desired result is obtained.

The precipitating operation completed, the next step in the process is the addition of a certain quantity of

petroleum. After this is added, the whole is slowly stirred with a funnel-shaped beater having a perforated bottom. Great care has to be taken that the beater does not rise above the oil. The stirring is continued for a period of from three to four hours, and at a very slow rate, so that no bubbles are produced, the production of which would cause a great deal of waste. The oil which now contains the cocaine is run off into the washer, and is there washed with clean water—absolutely free from acids. This having been done satisfactorily the water is poured off, and a fixed percentage of the oil is taken for test. To this is added varying quantities of acidulated water in the proportion of 3 grammes of acid to 1,000 grammes of water. The proportion which is found to give the best precipitation is applied in the same proportion to the bulk of the oil in the washer. The oil and acidulated water are then stirred vigorously for from thirty to forty minutes, and the mixture is then allowed to rest fifteen minutes. The acidulated water, or liquid cocaine, is then drawn off and poured into the vessels.

In compartment No. III. the final precipitation is effected. A test is again taken of the liquid in a similar manner to that previously described, only in this case, instead of the acid, use is made of carbonate of soda in varying proportions, so as to discover which gives the best results. After this has been ascertained, the whole of the liquid cocaine is treated with carbonate taken from the vessels. It is then left to settle for twelve hours, at the end of which time it is passed through a strainer, with large quantities of distilled water to wash away the residue of the carbonate, and it is then placed in the press. Pressure being applied, all water is driven off, the result being a white paste of cocaine, which is within 87 to 93 per cent. of purity. This operation is carried out daily, and an average of 1 kilogramme

(= 2·204622 pounds) is obtained every twenty-four hours.

At times the cocaine, instead of being white, is of a brownish colour. This shows an inferior quality of leaf, and in this case a further operation is needed to improve the colour and quality. The paste is dissolved again in strong acidulated water in the proportion of 5 grammes of sulphuric acid to 100 grammes of water. More water is added as the paste is dissolved, until a proportion of 3 grammes of acid to 1,000 grammes of water is obtained. It is again precipitated with carbonate, put back into the washer with oil, and stirred for three hours, at the end of which time the water is drawn off. A solution of acidulated water is again added in proportion of 10 grammes of acid to 1,000 of water. This is kept stirred for two minutes, and finally removes the gums, which cause the brown colour; but at the same time a proportion of the cocaine is lost. The cocaine is then treated as before. The colour is improved, but the weight is decreased, which makes the process wasteful.

The number of workmen in a plant of this size varies from three to five. All the channels for tincture and carbonates have open tops, owing to the trouble that would be caused by obstruction with closed pipes, the carbonates and tinctures solidifying and causing stoppages. The water used must in all cases be filtered. The approximate cost of producing 1 kilogramme of cocaine by this process is £11—say £5 per pound. The cost, however, varies with the price paid for the coca-leaves, which is always changing.

Cocaine was exported from Peru in 1909 to the value of £60,287.



THE PORT OF MEJÍA : NEAR MOLLEDDO. ON THE PLAZA.



EMBARKING PERUVIAN TROOPS ON THE CENTRAL RAILWAY.

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CHAPTER XXII

Mining—Spanish greed—Mineral districts—Sierra region—Numbers of claims—Working companies and output—Labour conditions—Mining code—Gold and silver mines—Copper deposits—Cerro de Pasco—British indifference—"Ophir of the West"—Cerro de Pasco town—Various minerals found—Coal—Mining for foreigners—Unnecessary scare from United States of America.

THERE are many authorities—Professor Baron Humboldt and Sir Arthur Helps among them—who aver that the Spaniards were not led merely by a thirst for gold in connection with their conquests of South America, and who attribute their invasions at least equally to the pious desire of spreading the Holy Catholic faith! I am afraid, however, that those who read the history of the Conquistadores carefully will be unable to share in the altruistic views of the two distinguished writers whom I have mentioned. Whatever may have been the original intention of the Spanish invasion of South America, there cannot be any question that, once there, the conquerors devoted the whole of their efforts and the whole of their powerful resources to securing as much treasure as they could steal from the poor natives or themselves win from the earth; and since they were, as we know, religious fanatics of the worst kind, it seems only fair to assume that the spreading of their own religion among the natives was practically throwing "a sop to Cerberus," or, in other words, offering a tribute or premium to the Almighty in order to obtain absolution for their hideous and wholly unnecessary crimes against humanity.

Although the Spaniards were the first to pursue mining in Peru with anything like a system, there is abundant evidence that the Incas knew well how to obtain the pure gold from the auriferous rocks with which their country abounded and still abounds; but whence they learned and how they practised the art of amalgamation and refining the gold are not very clear. The immense quantities of both gold and silver ornaments which they manufactured, and numbers of which still exist, show, however, that if much gold must have been lost in the process of treatment, a vast amount of it was still preserved. Unfortunately, space will not permit of my quoting in these pages, as I feel greatly tempted to do, the records of the discovery and working of the principal mining districts under the Incas and the Viceroyalty, a subject which forms a highly instructive and intensely interesting chapter of the history of those periods. My present and more prosaic task is to briefly consider the physical features of the mining industry of this richly endowed country.

As I have previously mentioned, there are three distinct regions in Peru—the coastal, the mountain, and the forest. The first is an arid and wide-spreading zone where little or no rain falls. There are no mines here, if one excepts the petroleum deposits and the sulphur-mines located upon the northern coastal plains. In the forest region there are also but few indications of any great mineral wealth, although here are found a few widely separated deposits of gold-bearing quartz and placer gravel on the border of the forest region in the southern part of the country.

The great mineral wealth of Peru lies in the *sierra* or mountain region, and, as is not uncommon with Nature when she bestows great riches upon humanity, she has placed them in almost inaccessible places, and has rendered the task of gathering them as difficult and as

dangerous as possible. The most valuable mines in Peru are those situated at an altitude of from 8,000 to 12,000 feet, and to reach which, until the advent of the railway, steep and tedious mountain trails had to be crossed, and every pound of equipment and machinery carried laboriously and slowly, packed in small sections, upon the backs of draught mules, to the mines, where they were put together.

Some few years ago, when the official list of mining claims was issued, there were nearly 10,000 claims listed ; and out of these nearly 1,200 were being worked by 160 different native and foreign-owned companies.

The mineral production of the Republic includes coal, crude petroleum, gold, silver, copper, lead, bismuth, nickel, mercury, sulphur, borax, antimony, molybdenum, and salt, the working of the latter being a monopoly of the Peruvian Government. According to such mineral statistics as are available, there were at this time in operation twenty-four lixiviation plants, seventeen amalgamation plants, thirteen smelters, three lead smelters, three concentration plants not connected with smelters, two smelting and bessemerizing of copper plants, two petroleum refineries, and one sulphur refinery. Of the smelting plants the more important are the smelters of the Cerro de Pasco Mining Company, which have a capacity of 500 tons per day ; the Backus and Johnson smelter at Casapalca, with a capacity of 150 tons per day ; and the Huaracaca smelter, situated on the road to Cerro de Pasco, which has, with concentration and amalgamation, a capacity of 100 tons per day. These different smelters are all easily accessible on account of the Central Railway almost passing their doors ; but there are a number of smaller smelters which are so far away from existing railways as to have proved anything but successful ; with the advent of branch lines, however, such as are contemplated, the majority,

if not the whole, of these furnaces would come actively into operation.

Usually speaking, there is sufficient labour for the mines available; this is performed by Indians and the mixed native races. They are found quite obedient and docile, but usually very ignorant, and they are prone to indulge too much in keeping their numerous saints' days, to which they cling as tenaciously as the Indians of Mexico, who celebrate as many as 200 saints' days in the year. On the other hand, many of them own small patches of land, and these they industriously cultivate; at certain times of the year they will disappear, generally without notice, in order to till or reap according to the season; but they almost invariably return after these operations are completed.

The daily pay of a common labourer ranges from 20 *centavos* to 1 *sol* (5d. to 2s.), while in the smelting and concentrating sheds it ranges from 60 *centavos* to 1 *sol* 20 *centavos* (1s. 3d. to 2s. 5d.), and in the ore-packing sheds from 40 to 50 *centavos* (9d. to 1s.) per ton per kilometre.*

The Peruvian Government has naturally done—and is doing—much to foster the mining industry, in view of the substantial revenue which it obtains—and will in a few years' time enjoy—from it. In 1876 the School of Mines was established, and has proved useful to the industry, some exceptionally brilliant young students having distinguished themselves, not only in the Republic, but in other parts of the world. In 1901 a new Mining Code was promulgated, and this gave a fresh impetus to the development of mining. The new Code affords additional facilities for acquiring mining properties, ample liberty in working them, and absolute

* A good deal of information regarding the physical features and mining industry of Peru may be found in a pamphlet by Mr. George I. Adams, of Washington, D.C., U.S.A., being extracts from a paper read before the American Institute of Mining Engineers, February, 1908.

security in their possession. The importation of machinery, as well as the fixtures and tools used for mining, is exempt from Customs duties, as are also coal, timber, dynamite, quicksilver, and other materials necessary (see Appendix).

The Peruvian Mining Code, which may be purchased in a complete form at a very reasonable price, declares that any individual may acquire mining properties with the number of claims (*pertenencias*) desired from one to sixty. A *pertenencia* is the unit in mining properties, as it is in Mexico, Colombia, Venezuela, and other Spanish-speaking countries, and measures 200×200 metres, and thus covers an area of 40,000 square metres in the case of coal, petroleum and gold placers, platinum, tin, etc.; but in all other mining properties the *pertenencia* measures only 200×100 metres = 20,000 square metres. For every *pertenencia* the owner must pay to the Government a tax of \$15.00 (£1 10s.) each half-year, or £3 per annum.

The administration of all questions and the settlement of all disputes in relation to the mining industry remain in the hands of the Government, which is assisted in its decisions by a Superior Mining Council and by "Delegaciones" and "Diputaciones," appointed by the mining districts. The Department of Encouragement and Public Works is the executive, having control of all mining matters; and it acts up to its name admirably, literally "encouraging" in every possible and legitimate manner both mining and other enterprises, whether undertaken by natives or foreigners, which can in any way redound to the advantage of the country generally.

Gold is found in veins of ferruginous quartz, generally accompanied by other metals, such as silver and copper; but it is also found in the form of nuggets, or in the alluvial deposits and in the sand which is brought down

by the mountain streams during the freshets. Silver is found in practically every part of the vast Andean region, and there is scarcely a single defile, however small, in the whole of this enormous area in which veins of silver more or less rich—but frequently unworkable on account of their remoteness from a railway and the difficulties of mule transportation—cannot be found. The white metal is generally encountered mixed with lead or copper, and frequently with both. In Peru alone I have seen the curious ore called *cascajo*, which, although having no metallic brightness, owing to the oxide of iron which it contains, is nevertheless frequently found to be very rich in silver, as well as in copper ores. It is this character of rock which is met with principally in the mining districts of Cerro de Pasco.

The best-known mining ranges for production of silver are: Hualgayoc; Salpo; Callejon de Huaylas, in the north; Cajatambo, Huarochiri, Yauli, Cerro de Pasco, Huallanca, and Castro-Virreina, in the centre; Lucanas, Puno, Lampa, Cialloma, in the south.

In no country will copper be found in greater quantities, nor in more remarkable combinations and forms, than in Peru. The veins actually of copper contain this metal with a small proportion of silver and a yet smaller ratio of gold. Although it may be met with in Chimbote, Ica, and Lomas, it is at Cerro de Pasco that the red metal is found in the greatest abundance and of the greatest richness, the deposit being an accumulation of copper, silver, gold, and lead ores, with various other minerals in a lesser degree.

Early in 1902 a certain J. Haggim, with some others, became interested in this region, and they acquired the mines referred to at an extremely reasonable price, which, however, did not prevent them from bringing out a Company to work them with an authorized capital of \$60,000,000 (£12,000,000). Of this large but still

necessary sum nearly \$30,000,000, (£6,000,000) have been already expended in the purchase of the mines, construction of the railroad, smelters, office buildings, and other development expenses. All these constructions show evidence of first-class work, a remark which may also be applied to the shaft-house, warehouses, and yards ; while the Esperanza Club House, which has been erected for the use of the many American employés engaged by the Company, is one of the most comfortable edifices of its kind, and, indeed, it need be in view of the absolute lack of recreation or outside amusements and resources that the town of Cerro de Pasco offers. The mining plant is one of the most complete and efficient that can be seen in any part of the world, and I regret that lack of space prevents me from describing it in further detail.

How the British capitalist, through nervousness or ignorance, and often through both, allows golden opportunity to slip from his grasp, is shown in the case of the Cerro de Pasco mines. These mines were offered by their discoverer—a man named Bennett, now dead—to the firm of N. M. Rothschild and Son, of New Court, St. Swithin's Lane, and it seemed at one time as if they were likely to take them. But the spirit of cautiousness, so commendable upon some occasions and so deplorable upon others, overcame the desire to do a good stroke of business ; and, the Rothschilds withdrawing at the last moment, the Americans, ever ready to "smell" a good bargain, came in, and to-day the famous Cerro de Pasco is a North-American enterprise, managed by Americans, equipped with American machinery, and finding occupation for several hundreds of American engineers and employés. And all of this, but for poor judgment and worse timidity, might have been British ! In 1907 Cerro de Pasco mines shipped 10,000 tons ; in 1908 they shipped 15,000 tons ; and this year (1911-12) it is expected they

will ship something like 35,000 tons, and eventually 50,000 tons per annum of copper ores.

But for the magnificent output from Cerro de Pasco mines, it is very doubtful whether the Central Railway of Peru—that stupendous enterprise known as the “railway in the clouds,” and which cost the British investor the huge and unproductive sum of £5,000,000 to build and equip—could be run at all; for its mainstay is, and always has been, the ore from the Cerro de Pasco mines; so that if the British capitalist has lost the chance of owning the mines, he has at least the consoling privilege of carrying its output, or a part of it, until the Company—as is possible—builds a railway of its own.

Yet, if we have lost the chance of this splendid property, there are others existing which are, in all probability, as desirable. The whole of this region of the Andes is fabulously wealthy in all kinds of minerals, the veins actually of copper containing this metal with a small proportion of silver and traces of gold. The arsenical and antimonial sulphurets are found in great abundance in this district, as well as in others such as Chimbote, Ica, and Lomas, and they are at the present time the object of considerable exploitation in these mining centres. Copper, however, is but one out of several minerals which are to be found—and found in immense quantities—in this well-named “Ophir of the West.”

I have written nothing of the rich deposits of alabaster, porphyry, marble, and a jade which is better than any to be found in the old temples of Rome and Greece. I should say, from what I have seen and what I have heard about the minerals of Peru, that there is hardly one of the known kinds but can be found somewhere or other in this country. Upon looking at some records made up within the past few years, I observe that the metric tons mined in 1905 amounted to 165,256,

while in 1903 the amount had been only 105,072 tons. The commercial value had also risen to \$1,828,531, as against \$1,382,080 for the same periods.

The present condition of the mineral and metal industries of the Republic is indicated in the subjoined figures :—Exports: (1907) kilos, 59,939,937, value £P1,972,929; (1908) kilos, 47,482,648, value £P1,601,227; (1909) kilos, 40,809,037, value £P1,638,180.

Many of the mining towns in Peru, as in Mexico, present a gloomy, rather dilapidated, and otherwise unattractive appearance to the foreigner, who is accustomed to the brightness of many other, and especially North American, mining centres; but Cerro de Pasco certainly takes rank as one of the most depressing. The town itself was established some three centuries ago, and is one of the oldest mining towns in the New World, its population being over 10,000, and its elevation some 12,000 feet above the level of the sea. It has, since the seventeenth century, been a centre of mining activity; in fact, as the legend says, "since a shepherd found some curious metal in the bed of the fire he had lit to protect himself from the cold and the damp." The town, although quaint in appearance, is decidedly unpleasant as a place of residence, owing to its uncleanness and general decayed condition. The inhabitants seem to be among the less careful of personal appearance of any of the natives to be found in Peru, and the various stench which emanate from the streets would put to the blush the "seventy-two different stinks" which are supposed to distinguish Cologne.

In fact, Coleridge's description of that city might well have been written about Cerro de Pasco:

"In Köln, a town of monks and bones,
And pavement fang'd with murderous stones,
And rags and hags and hideous wenches,
I counted two-and-seventy stenches."

Nevertheless, that one may live there with safety in regard to one's health is proved by the fact that the British Consul, Mr. Stone, has resided in Cerro de Pasco for thirty years, and seems to all outward appearances to be as hale and hearty as ever.

Lead ores are abundant, being found frequently in the veins of argentiferous galena. The most notable are the mines in Yauli, Huarochiri, Chilet, Pallasca, Huari, Canas, and Recuay.

Quicksilver deposits are found in the Department of Huancavelica, notably in the famous and historical mine of Santa Barbara, which was worked to great profit in the Colonial period.

Tin is not very often encountered, and where it is found the deposits are of no industrial importance. Iron is more plentiful, but it has not hitherto been the object of systematic industrial exploitation. It is found in fairly large quantities in the districts of Calca and Lares, where beds exist with a grade of 80 per cent.

Nickel is abundant in the district of San Miguel, in the Province of La Mar. Sulphur is not only found in all the extinct volcanoes, but also in the form of extensive beds near to the sea.

Bismuth occurs in various parts of the country, particularly in the Department of Junín, where a bed of bismuth-ochre has been discovered with a grade of 40 per cent. of bismuth. Mica has recently been discovered on the coast, in the Department of Piura.

Borax occurs in important beds in the Departments of Arequipa, Moquegua, Tacna, and Puno, and the Central Railway's line passes through a large bed of this mineral. Molybdenum has been exploited for the past seven years in the Province of Jauja, where the deposits contain, in the form of sulphuret of molybdenum, from 20 to 30 per cent. of the metal.

One day—and that day is not far distant—the vast



CUZCO : RUINS OF INCA TEMPLE.

deposits of coal in Peru will be worked, and worked profitably. Practically all the representatives of the anthraconites are found—anthracite, pitcoal, lignite, and peat ; while in Cuzco I have been shown some of the coal-beds of Tonquini, which contained whole trunks of trees perfectly carbonized. A private museum in Cuzco which I also visited contained an extraordinary collection, comprising not only samples of coal, but specimens of all the minerals found in Peru. The museum belonged to an old Peruvian gentleman of eighty years of age, who was willing to spend hours, and even days, with anyone who cared to listen to him describing his treasures ; and who would slowly toddle around his small room (measuring 30 by 40 feet), which contained, however, exhibits—so he assured me—worth nearly £100,000, with perfect contentment.

Of the deposits of petroleum and salt I speak more fully in another portion of this volume (see p. 276, 277).

I have observed from time to time in various publications, and especially in Consular Reports, that certain writers consider Peru to be an unfavourable country for emigration ; and some among them—the American Consul-General at Callao, for example—have expressly warned foreigners from coming to the Republic. In justification for the tendering of this advice a great many so-called facts are set forth, which, although not untrue in themselves, might well apply to almost every country on the face of the earth, and more particularly to Great Britain and the United States. The last-named authority to whom I have above referred, for instance, says *inter alia* : “ There is no work to be had for Americans at Mollendo, nor in the interior, nor at the mines, nor *anywhere* in the mining sections. If they come without money they will have great difficulty in getting away to some more profitable country, and would be apt to suffer severely in the meantime.”

From my own observations I am quite unable to endorse these statements, my experience being that when I required some very ordinary clerical assistance in the form of a shorthand-writer and typist, I found it practically impossible to obtain one, and discovered subsequently that the demand for such assistance was invariably larger than the supply. The same remark applies to mining, different managers informing me that they were generally very short of foreign labour, and that any man who was worth his salt could readily find employment. This was abundantly testified to by the large number of young Americans who were employed at the Cerro de Pasco and other mines, although their Consul-General avers that "they can find no employment anywhere."

I thoroughly endorse the recommendation that it is inadvisable for anyone in mercantile, mining, in educational, clerical, or other lines of commercial life to proceed to Peru without having previously secured a guaranteed position in some respectable concern; but is not this a suggestion which might, and does, apply to practically every other country? By issuing such a scare-report as this the American Consul-General at Callao is scarcely rendering good service either to his own country or to the Republic to which he is accredited, for it may serve to keep away a great many young and enterprising men who would otherwise do extremely well in a country just on the verge of its commercial and industrial development—one which offers exceptional guarantees for personal safety, which has an undeniably equitable climate, and where foreigners are made especially welcome. Personally, I would far rather take my chance of finding casual employment and a courteous reception in applying for it here than in either New York, Chicago, or London.

It would also be seen from perusing the following

extracts how strangely the observations made by Mr. William Henry Robertson, the zealous and well-meaning United States Consul-General in Callao, compare with some remarks expressed by Señor Don Felipe Pardo, Envoy-Extraordinary and Minister-Plenipotentiary for Peru to the United States, and by Professor David Kinley, Director of the School of Commerce of the University of Illinois, one of the delegates of the United States to the last Pan-American Conference held at Buenos Aires. Both are at least as responsible authorities as Mr. W. H. Robertson. Señor Felipe Pardo observes: "Among the countries of South America, Peru perhaps offers the best return for your capital. Her ports are less than 1,000 miles from the Canal, her waters are truly Pacific, her climate is temperate. . . . American capital could be advantageously invested." He also spoke eulogistically of the mines, some of which, world famous to-day, have been developed with American capital. How could this have occurred had the United States Consul's recommendations to stay away prevailed generally, and his warnings taken seriously by those to whom they were addressed?

Now let us see what Professor David Kinley has to say: "I deprecate our lack of knowledge and adaptability to South American ways of doing business. We far too often send down men who cannot speak the language. This is a waste of time, money, and good temper. You cannot do business with a man unless you talk to him. You may get all the interpreters you like, but he will not catch your meaning, and you cannot catch his."

CHAPTER XXIII

Callao—Early history—Physical aspects—Climate—Suburbs—Sanitary improvements—Chosica—La Punta—The volcano of Misti—City of Arequipa—Early history—Earthquakes—Hospitality of the inhabitants—Buildings—Banks—Tramways—Electrical equipments—Life in Arequipa—Cuzco—Ruins—Modern city life.

THERE is probably no more genuinely interesting city in Peru, nor one which is more famous for the romance attaching to it, than Callao, which, historically speaking, is as ancient as Lima itself. Having withstood many sieges by pirates, in which encounters it came off usually by no means best, Callao was compelled to capitulate to the earthquake of 1746, which was accompanied by a tidal wave, the combination of disasters resulting in the entire place being destroyed. It is recorded that both the town and port disappeared from view, and there is nothing left to tell the tale but a few traditions more or less to be relied upon. In 1867 Callao experienced a second seismic shock, which, although less disastrous in its results, nevertheless proved bad enough.

Callao was founded in the year 1537, two years after the foundation of the city of Lima, and in 1671 we read of its population being "considerable," and, indeed, so important was its trade that the title of "city" was conferred upon it. For many years it remained the centre of Spanish colonial commerce, and so much wealth was piled up in its warehouses that the cupidity of the famous British pirate Drake was excited, and in 1578 he descended upon the coast, seized several merchant vessels in Callao Harbour, and appropriated

the booty. Then it was that the Viceroy, Count del Villar, considered that it was high time to fortify the place; and forthwith he proceeded to do so. How well he succeeded is proved by the fact that when in 1624 the place was again attacked, this time by the Dutch pirate, Heremati Clerck, with eleven ships, 240 guns, and 1,600 men, the enemy was beaten off with comparative ease. History records that Clerck took his defeat so much to heart that he died of grief, but it is not chronicled that the good people of Callao expressed any very deep regret nor that they went into mourning.

From this time onward Callao seemed to thrive and fructify; its population increased, and many handsome buildings, including one convent, seven temples, and a whole range of Government and commercial offices, went up; but unfortunately they also went down, for the earthquake of 1746, as already observed, completely destroyed the city, some 6,000 of its inhabitants perishing in the catastrophe at the same time. The survivors, with that extraordinary pluck which characterizes the Latin-Americans in the face of terrible seismic disasters, at once proceeded to rebuild the city, and to fortify the port with castles and bastions, provided with 150 pieces of artillery of different calibres. The military garrisons played an important part in subsequent political wars, and this fort was the last bulwark of Spanish power in South America. When in 1826 Peru was declared an independent State, Callao became its principal port.

It cannot be said that the first impressions of Callao are particularly favourable. Landing at the Muelle Dársena in small boats, the steamers usually taking up their berths after passengers have been landed, one is confronted by a maze of narrow and irregular streets, the houses in which appear to be somewhat badly ventilated, and the paths leading to them usually dusty or dirty.

The average height of the city is 2·30 metres above the level of the sea, the difference as regards the city of Lima being a height of 145 metres. There are practically two towns, the "old" and the "new," the modern portion being a short distance north of the original town, while the older portion occupies the centre, and comprises the many crooked streets already referred to. Between the two portions there is a large open area where some broad and handsome avenues have been laid out at right angles. At present, however, there have been only second-rate edifices erected upon them. An excellent, if not too frequent, service of trams runs between Callao and Lima, a distance of seven miles, the time occupied on the journey being from twenty to thirty minutes.

That Callao is not increasing in popularity as a place of residence is proved by the large number of merchants' houses which have closed their doors, the occupants removing their domiciles to Lima. Scarcely a dozen prominent firms now have separate offices at the port, such as there are being merely those which are used by tally-clerks and for the ordinary business relating to the receiving and discharging of cargo. The tramcars arriving at Callao in the morning and leaving for Lima in the evening are usually crowded to excess with clerks and workpeople, reminding one forcibly of the appearance of the "Tubes" in London, or of the "L" Railway in New York during the same hours of the day. At night the streets of Callao are given up to the inevitable prowling cat and the sleepy, bemuffled policeman.

When it is dull and hazy at Lima, and that is for one-half of the year, the sun can always be reckoned upon as shining brilliantly at Chosica, situated at a distance of but thirty miles from Lima. Beautifully located at the foot of verdant and bushy hills, amid most fascinating scenery, this delightful little place is a favourite

retreat for the Limonians. The summer season synchronizes with the hideous winter months of Europe and the United States, and no greater comparison can be drawn between beauty and desolation, between comfort and discomfort, for residents than these different localities situated at almost opposite extremities of the world. There is a very pleasant but small hotel, and also several handsome private residences. If I were asked to recommend any particular place of residence among them I should be inclined to mention the Sanatorium, which, although possessing an unattractive name, is really a very agreeable place in which to pass a few days ; at any longer period I should hesitate.

To the left of the port of Callao, within a few minutes' ride, there is the small and attractive suburb at present of modest dimensions only, called La Punta, or "The Point," an apt name, inasmuch as the land consists of a small peninsula forming part of the bay, and facing the island of San Lorenzo. The social season lasts from December to May, during which months the place is fairly well patronized by the people of Lima, who can reach La Punta by direct street-cars, which make the run in twenty minutes. A few new houses have been erected this year in addition to the Eden Hotel, which, if not elaborate in design, at least enjoys an attractive sea-view.

A new era of prosperity dawned for Callao in 1900, when, upon the recommendation of the Institute of Civil Engineers in London, Mr. E. J. Rumsby, M.I.C.E., was sent out to Peru to make plans and give estimates for a complete system of water-supply and drainage. In spite of its being the second most important city in the Republic and having a population amounting to nearly 35,000 inhabitants, Callao for many years had been left in a dirty, insanitary condition ; it is in some parts dirty still, but insanitary no longer.

The Supreme Government gave its consent to the cleansing programme in 1901; the money to build the waterworks, and later on the drainage-works, amounting to £42,000, was found, and the first part of the undertaking was completed and put into use in 1904.

About twenty-four miles of piping are laid down in Callao, the head works of the water-supply being situated 5 kilometres above the town at a place called Chivato, from which there is a drop of considerable depth. The main-supply pipes, made of cast-iron, are 21 inches in diameter, diminishing gradually until they reach the diameter of the street laterals (5 inches). The amount of supply is 30 gallons per head per diem, for 50,000 people.

The static head in the town mains equals 80 feet, affording an average pressure of 38 pounds to the square inch. Nearly the whole of the houses in Callao have been connected up, and although the rates are deemed rather high—there are many people who think that they should be provided with water for nothing!—general satisfaction with the service is expressed.

The sewerage system forms the second part of the scheme, and this is making such excellent headway that in all probability it will be in full operation before these lines are in the printer's hands. Mr. Rumsby, the engineer in charge, has made provision for a population of 60,000, or almost double that of which Callao boasts to-day. The town is divided into three zones, the sewerage system being so conducted that at all states of the harbour tide the outlets of the discharge pipes are completely submerged, thus assuring a thorough diffusion into the sea. The works were commenced in the month of February, 1907.

Arequipa is both the name of the Department and that of the Capital. The former lies along the Pacific Coast from latitude 15° to 17° 20' south, the entire

population amounting to about 200,000. A large number of volcanoes exist here, some extinct, others occasionally active, among the latter being the beautiful Misti (also called "Arequipa"), which reminds one in appearance very much of Fujiama, in Japan. We see the same perfectly shaped cone, the same majestic proportions, and the same awful grandeur which its calm, changeless dignity produces. Its height is 20,320 feet above the sea, and its head is ever under snow. The last eruption took place in 1839.

It would occupy several volumes to afford my readers anything like a practical idea of what the chief Peruvian cities are like, and I can only hope to say something very brief of a few among them. Already I have spoken in an earlier chapter of Lima and Callao; I would now speak, I fear but sketchily, of Arequipa, the third most important centre in Peru, and one of the seats of Spain's great colonization power.

The city of Arequipa lies at the foot of the superb volcano, and buried in a fertile valley. It is divided into separate districts—Santo Domingo, San Francisco, La Merced, San Agustin, and Miraflores. The population probably exceeds 38,000. The city is typically Spanish, all the streets being laid out at right angles; the houses are mostly one-storied, with ugly flat roofs—the best kind of edifice no doubt for a place so often visited by earthquakes as Arequipa, which had serious visitations in 1582, 1609, 1784, and 1868.

I have, however, seen some really handsome houses in this city, but they were probably the residences of the Spanish *grandees* of those Colonial days, when all labour was forced, and most material either stolen or acquired for practically nothing. The principal material used for the walls is a soft magnesium limestone. The houses have several inner-courts, or *patios*, and the rooms have handsome moulded ceilings. Arequipa is a University

town; it has a public library; several academies; it is the seat of a bishopric, and it supports several newspapers. Electric tramcars will soon be traversing its streets, and already some very commodious and substantial public and private buildings have replaced the old and unattractive houses of later Colonial days. The Chief Depot of the Mollendo-Arequipa Railway (Southern Railway Company) is here, and the general manager, Mr. H. A. McCulloch, occupies one of the most pleasant residences in the city, he and his charming wife being the most popular, as they are certainly the most hospitable, among the foreign residents.

Lima was not the first city in Peru to be founded by Francisco Pizarro, as so many historians tell us. I satisfied myself that at least one town dates from an earlier period—San Miguel de Piura, which was actually commenced by the Spaniards in 1530. Even Trujillo is older than Lima, for whereas the latter was founded in January, 1535, the former dates from 1534. Then came Arequipa in 1540, Ayacucho, Huamanga, and Potosi in 1542, and the city of La Paz—both now comprised in the Republic of Bolivia—in 1549. Cuzco, the beautiful Inca capital which Pizarro occupied in 1534, of course had already existed some centuries before.

Arequipa seems to have been a place of some consequence even in its earliest known days, since we read of it sheltering, in 1553, Francisco Hernandez Giron, one of Pizarro's captains, who broke out into rebellion against him, and collected a formidable army to resist the Conqueror's authority. It is only those who have made the long and tedious journey from Mollendo to Arequipa and *vice versa* by train, who can realize and appreciate the physical pluck and endurance of those Spaniards who marched in their heavy, cumbersome armour, and without any of the commissariat (so necessary upon a journey of this kind) from Arequipa to Lima,



CUZCO : A STREET SHOWING OLD INCA MASONRY AND PILLAR OF SPANISH ARCHITECTURE.

THE
MUSEUM OF
THE
CITY OF BOSTON

in order to give battle to Pizarro! In the end Hernandez Giron found it best to retire before the armed arrays against him; and finally he was arrested, tried, condemned, and beheaded on December 18, 1554. But he was a glorious "man," and one of the bravest soldiers who ever lived and died.

The population of Arequipa is under 40,000, the city being the centre of a very rich and influential community. It boasts a Bishop's palace, a Prefect's palace, handsome courts of justice, and it is the centre of a large military division. A considerable commerce is carried on with Great-Britain and Germany, in such articles as leathers, rubber, copper, gold, and wool. Imports are received from Germany, Great Britain, France, the United States, and Italy. Germany has almost completely supplanted England in some of the soft goods formerly supplied. There are some English houses established in the city, but a great many more German. Several local factories do a large home and foreign trade, the most important, perhaps, being the property of the firm of M. Forga and Sons, and situated near Huaico, a cotton factory containing a full equipment of British-made cotton-spinning machinery with German electrical plant. The factory cost the sum of £100,000 to build and equip, and it turns out practically all classes of white prints.

The Arequipa banks are in some cases branches, and in others independent institutions, but are mostly very successful undertakings. The two most important are the Banco Italiano, with branches in Lima, Callao, Chincha, Alta, and Mollendo; and the Banco Alemán Transatlantico. The Banco del Peru y Londres has a very large branch here also. It was established in 1895 by uniting two institutions known as the Banco del Callao and the Sucursal (Branch) in Lima of the London Bank of Mexico and South America. The

first named had an initial capital of £200,000, which was subsequently increased to £770,000.

The Banco Italiano was founded in Lima in 1889, with a capital of £200,000. The reserve fund amounts to-day to £90,000. The shares of £10 each are quoted at £14, the dividends paid amounting to 22 per cent. in 1906, 26 per cent. in 1907, 13 per cent. in 1908, 8 per cent. in 1909, and 20 per cent. in 1910.

The Banco Alemán (Deutsche Ueberseische Bank) is a branch of the Lima establishment, which is again merely a branch of the Berlin office. The nominal capital is Ms. 30,000,000 (£1,500,000), and there are twenty-four different branches throughout South America. This institution has done an immense service in furthering German trade and commerce. In this respect it stands almost alone among the monied establishments upon the South American Continent.

The Electrical Company, a local undertaking, was founded in Arequipa some few years ago to construct light and power works, and eventually to run an electric cable car service. The concern has, especially latterly, proved very successful. The power is taken from the magnificent falls and river at a place called Charcani. The Company lights the whole town, supplying both the municipality, the factories, and private consumers.

The local Tramway Company may one day, and not a far distant one either, blossom into an undertaking of some importance. It was established in 1874 with the small capital of £10,000, and has passed through many different hands at many different times, finally becoming the property of the Credito Urbano de Arequipa. This institution came to financial grief, and the tramway fell into the hands of its creditors, who are now working the concern more or less—I am rather afraid *less*—satisfactorily. Nevertheless, the number of passengers continue to increase, the figures being :

1907, 614,317 ; 1908, 825,565 ; 1909, 1,052,854. The whole rolling-stock consists of some twenty-three open or closed cars, the service being a five-minute one through the day, and the whole length of line a little more than 11 kilometres. The annual profits amount to £3,200, or, say, 32 per cent. upon the amount of the present capital invested.

The people of Arequipa are intensely attached to their city, and there is no small amount of rivalry—perfectly good-natured rivalry, *bien entendu*—between this ancient city and more modern Lima. Residence in the former is decidedly agreeable from a climatic point of view, and most of the luxuries of latter-day civilization are obtainable. One may pass several weeks in this city as a visitor without becoming in any way bored ; the kindness of the inhabitants, the courtesy of the officials, and the general air of prosperity which the place possesses render a sojourn there among the most pleasant of the traveller's experiences in the Republic of Peru.

The Harvard University have erected a fine astronomical observatory a short distance from the city of Arequipa, upon the slope of the majestic Misti. This institution is now some twenty years old, and was originally intended to facilitate the taking of observations at the highest possible altitude above sea-level. The institution, which is fully and even elaborately equipped with all the latest scientific apparatus, is under the direction of Mr. Frost, a distinguished Harvardian scholar and scientist. The Government have always taken the keenest interest in the proceedings at the Observatory, and offer every encouragement to the staff to persevere with their studies.

Cuzco—the Imperial City of the Sun—the ancient capital of the Inca Empire, is chiefly interesting for what it was, rather than what it is. Verily its ancient glory has departed, and where once the sacrificial altar reared

its gruesome pyramid to the skies, now stand endless church towers, some of them monstrosities of ugliness, others types of beautiful Spanish-Moresque architecture. I do not know precisely how many churches are owned by Cuzco ; but they certainly cannot number fewer than threescore.

It is the surrounding territory of the town, however, which will claim the first attention and enrapture the mind of the visitor who is at all interested in the history of the wonderful people who, but four centuries ago, inhabited this city. The numerous ruins which exist, the curious formations of which often completely puzzle the observer as to what particular use they were originally devoted ; the remarkable character of the architecture, solid and sensible, often composed of gigantic slabs of rock so artfully welded together—and without the use of a shred of mortar—as to present the appearance from a short distance of a solid whole ; the huge *plazas*, or public squares, in which the Incaic celebrations took place—all of these impress the visitor as strongly, and produce a feeling of melancholy as profound, as the ruins of ancient Egypt, the remains of the Toltecs in Mexico, and the vast deposits which have been left by the former inhabitants of Anuradhapura and Polonnaruwa in Ceylon.

To-day the electric light illumines the straight and regular streets of Cuzco ; trams—primitive and uncomfortable, but still tramways—perambulate the thoroughfares ; a railway-station, located a mile or so from the town, fills the quiet air with locomotive whistling, and the shunting of heavy goods waggons can be heard both night and day. The telegraph and the telephone, fresh fish and meat of the best quality, a profusion of fruit, and the choice of many comfortable modern dwellings make Cuzco a by no means unpleasant place in which to reside occasionally.

CHAPTER XXIV

Foreign companies—The Peruvian Corporation—Relations with the Government—Lima Railways—Peruvian Amazon Company—Putumayo scandals—United States' recognition of Peru as possessing territory—Position of the Company—Lobitos oil-fields—Backus and Johnson Brewery—Peruvian Cotton Manufacturing Company.

THE aggregate of foreign capital which has been from time to time invested in Peru cannot be to-day much less than £60,000,000, if one considers the several large and important undertakings which such an amount represents. British, North American, German, and a small proportion of French capital has found its way into the Republic, which in the coming years is destined to receive a considerable augmentation.

The Peruvian Corporation, Limited, is an institution which is probably unique both in regard to its origin and its position, offering an example of a huge financial association charged with the double trust of protecting the interests of some thousands of foreign shareholders, whose money is invested in Peru, and conducting the management of a number of important transportation and commercial enterprises in such a manner as to please its shareholders, satisfy the public, and content the National Government.

The difficulties, dangers, and disappointments attendant upon such undertakings can well be understood, and the necessity for steering a course which shall satisfy all alike is apparent. How that course has been negotiated in the past and with what amount of success, the records of the Corporation plainly show. That its

career has been a somewhat exacting, and at times almost a discouraging one, may be admitted. Such a delicate position as that occupied by the management in Peru must command some sympathy, and the Corporation's many critics are apt to overlook the inherent difficulties which of a necessity exist.

It would be idle to deny that, some years ago, strained relations existed, and continued for some time, between successive Peruvian Governments and the Corporation. The latter had been charged in those turbulent days with "showing a lack of clear-sightedness, with obstruction, and with displaying a want of sympathy, as well as failing to realize the precise objects with which it was originally formed." These were the complaints lodged by certain Peruvian critics, at least; and some allowance must no doubt be made for the natural irritation of those patriotic souls who find a masterful and determined and extremely powerful foreign institution dominating the entire national transportation arrangements of the Republic, and occupying the always unpleasant and frequently dangerous position of usufructuaries. The same irritation prevailed in Mexico so long as the Central Railway remained under North American control, and ceased only—and even then not entirely—when the National Government purchased the principal interest and assumed the direction. Considering the extremely onerous situation in which the Peruvian Corporation has been placed during the long period of its existence, the wonder is not that there should have been some, but that there should not have been more, friction with the Government and the public of Peru.

The progress of the Corporation during the past twenty odd years may be gauged from the figures which are available. From 1890 to 1891, for instance, the net receipts in sterling amounted to £91,771 11s. 3d., while

for 1891-92, the receipts went up to £137,816 14s. 8d. In the next three years they slid back, however, mounting again in 1895-96, only to fall back once more in 1897 ; but from that time onward the receipts seemed to have shown a steady, if not a sensational, increase until 1908, when they amounted to £263,203 19s. 5d. For the year 1908-09 there was experienced a slight diminution, partly due to a decrease in the guano income, and partly to increased fixed charges, which, however, had been to some extent counterbalanced by an increase in the railway net receipts. For the periods mentioned the railways contributed not less than £228,247 5s. 3d., as against £105,745 14s. 9d., or an increase of £22,501 10s. 6d.

With the exception of their land colony, which showed a small debit of a little over £5,000, the whole of the undertakings in the hands of the Peruvian Corporation proved remunerative for the year ending June 30, 1910, a profit for the twelve months of £285,177 being shown. For the railways and navigation there was an increase in net income of over £93,000, but, on the other hand, there was a reduction of revenue from guano of nearly £38,000.

It is interesting to compare statistics of this Corporation since 1890 with those of present date, so far as net receipts in sterling are concerned. From 1890-91 these receipts amounted to £91,771 11s. 3d., while for 1909-10 they figured at £333,559, or over 200 per cent. increase. The net receipts for the last twelve months are the highest in the history of the Corporation, but by no means so in regard to the working expenses, which, upon three previous occasions, at least, were greatly in excess of last year's figures.

The question of the rate of exchange has played a momentous part in the Corporation's prosperity. Some twenty years ago, when it first took over the different important businesses which it has since conducted, the

rate of exchange stood at 37 pence per *sol*, from which it steadily declined to $22\frac{3}{4}$ pence for 1896-97, dating from which period it crept slowly upwards; but it has never exceeded $24\frac{1}{2}$ pence, and now stands at about $24\frac{1}{8}$ pence. There is no reason to suppose, with the improving prospects of Peru, that the rate of exchange will go any lower, but that, on the contrary, it may even moderately advance. The railways, steamship services, guano trade, and other enterprises which are conducted wholly or partially by the Peruvian Corporation, are referred to fully under the different chapters which deal with these subjects.

Under these same chapters, which I have devoted to transportation matters, some account of the various lines owned and the business done by the Lima Railways Company, Limited, will also be found. The financial conditions of the concern covering the transactions of the past year (1910) call for further mention here. The statement is favourable from a double point of view, since it shows that not only have the receipts in Peru augmented from £13,828 4s. 11d. in 1909 to £15,905 17s. 10d. in 1910, but that the expenses declined from £2,287 19s. 4d. to £2,077 12s. 11d., the not inconsiderable saving of £210 6s. 5d. being thus recorded — and the net receipts mounting from £9,134 1s. 8d. to £13,828 4s. 11d. It must be borne in mind that the Company is quite a young one, and still of but modest proportions; but it possesses all the elements for expansion, and a few years hence it should have a very different kind of balance-sheet to put forward. A dividend of 2 per cent. is not a magnificent one to pay, it is true; but it may be accepted as an earnest of what the future has in store. In the meantime let the shareholders remember the advice of Horace: “*Quid sit futurum cras, fuge quærere: et quem fors dierum cunque dabit, lucro appone.*”

THE ANCIENT INCA CITY OF CUZCO (ONE-HALF ONLY IS SHOWN).



THE ANCIENT INCA CITY OF CUZCO (ONE-HALF ONLY IS SHOWN).

Regrettable as were the revelations contained in *exposé* of the slavery conditions prevailing at the Putumayo estates of the Peruvian Amazon Company, Limited, and seriously as they reflected upon the conduct of certain of the Company's officials in whom there had been placed much mistaken confidence, three noteworthy facts have come to light. Firstly, every credit must be given to the Editor of *Truth* for the thoroughly earnest manner in which he attacked the scandal, and for the efforts which he made—and made successfully—to put an end to the hideous cruelties perpetrated upon the Peruvian *peons*. Secondly, the British Government also, for once in a way, did bestir itself, for Mr. (now Sir) Roger Casement, formerly H.B.M. Consul at Pará, Brazil, was sent from Rio de Janeiro, where he is the British Consul-General, to report upon the conditions of things. Although there has been no public issue of the report which he made to the Foreign Office (and in connection with which service he no doubt received his honour at the King's hand last June), I am in a position to state that Sir Roger has confirmed in almost every particular the terrible charges which were brought against the local management of the Peruvian Amazon Company, and which, therefore, altogether vindicates *Truth* in having been the means of exposing the atrocities committed.

Thirdly, praise should not be withheld from the Directors of the Company, who stood loyally by their employés until they were completely satisfied of their unworthiness ; then they repudiated and dismissed them without hesitation or compunction. Finally, the Peruvian Government, immediately that their attention was called officially to the infamy in existence—and they could not interfere with a foreign-owned and foreign-managed concern until so appealed to—instituted prompt and vigorous steps to arrest and prosecute those

who were responsible for the offences mentioned. Nor have their efforts proved unavailing.

It has to be borne in mind that the position of the Peruvian Government was a doubly difficult one. Putumayo, where the trouble arose, is in the most remote and most inaccessible of the Departments of the Republic, and the particular property of the Peruvian Amazon Company, Limited, is so situated that it is practically impossible for the central administration, located at Lima, to maintain anything like a careful watch upon—or, indeed, to have any official cognizance at all concerning—what may be proceeding so many hundreds of miles away in a wild and untravelled virgin country. The Government, moreover, have, as indicated, no legal right to interfere in the internal management of a foreign corporation, unless and until their attention is drawn through the usual diplomatic channels—as was done in this case by the British Foreign Office—to what is complained of. Immediately such notice was given, the necessary steps to bring about intervention were taken. More than this could not have been asked.

But a second and more serious obstacle confronting the Government of Peru was the outstanding question between the Republic and the sister State of Colombia regarding the rightful ownership of the District in which the Company's lands are situated. For many years the question of ownership has been in debate, and obviously it would have been highly improper for Peru to have sent any armed force (even if it had been requested to do so) to a place which might—but certainly does not—belong to Colombia.

In the month of December, 1909, the Consul-General for Colombia in London (Señor Francisco Becerra) made a public declaration before a notary to the effect that the " Republic of Colombia reserves its rights over the region of the Putumayo, which belongs to it, and

that consequently the lands (of the Peruvian Amazon Company, Limited) cannot be exploited until the formalities prescribed in such cases by Colombian Law be fulfilled." The property in question covers an area of about 12,000 square miles—that is, to-day it is larger than Belgium, which has but 11,373 square miles, and is about one thirty-ninth part of the size of the Republic of Colombia.

The Government of Peru have certainly no reason to feel anything but satisfaction at the outcome of this long-standing dispute, since they have been now formally and irretrievably recognized by the United States of America as the rightful proprietors of the Putumayo district. If this recognition was not intentional or deliberate, it is none the less definite and complete.

The circumstances leading up to the *dénouement* are as remarkable as they are interesting. It was urged by the Peruvian Amazon Company, Limited, that the serious charges brought against their management in Peru were the outcome of malice upon the part of one W. C. Hardenburg, who, failing to obtain from the Company the trifling sum of £7,000, which he claimed for "loss of luggage and personal inconveniences sustained while travelling through their territory," communicated the sensational revelations to *Truth*, and which, when published, caused so much comment.

Whatever rights Mr. Hardenburg may have had—and, in any case, a claim for "£7,000" for lost luggage seems about as tenable as the late lamented Paul Kruger's £2,000,000 for "moral and intellectual damages"—the Company declined to satisfy his request. He then appealed through his Government—the United States of America—for assistance, reducing his claim (I believe) to £4,000, still, it will be observed, a strictly moderate one! In the end, the Government of Peru, which, be it observed, was the authority addressed, and *not* the

Government of Colombia—met Mr. Hardenburg's claim by paying to him through the United States authorities the sum of £500 in full compensation.

While the Government of Peru did not, and do not to this day, in all probability, believe that Mr. Hardenburg ever had in his possession any luggage worth the sum of "£500," nor, indeed, raised any question concerning the real value of the property alleged to have been lost in Putumayo, they very shrewdly—and, to my mind, very diplomatically—paid the above-mentioned compensation; and by so doing they received the official recognition of the United States Government (which counts in a dispute of this kind) as the Sovereign owners of the territory in question. The success of the movement is unquestionable and the method of conducting it incontrovertible.

It is also significant that while a good deal of the Chairman's (Mr. J. Russell Gubbins) attention was given up at the shareholders' meeting (held on December 31, of 1909) to the charges made in the newspaper referred to, very little—and that little of less consequence—was uttered about the matter in the course of the last proceedings (December 16, 1910), and we may therefore believe that the "Devil's Paradise" and "A British-owned Congo"—as the Company's estates were dubbed—have either ceased to exist, or have been very considerably improved in regard to the management.

What the shareholders were much more interested in hearing was that the Company had made a profit of £35,365, which, although not large enough to afford a dividend, was better than the previous year, when nothing whatever was earned. The shareholders have not as yet been presented with those golden thousands which they were led to expect in the original prospectus. If I remember rightly, the accountants declared that the business being done "averaged profits for the year

(1906-07) about £61,000 ”; and the anticipated profits for the year 1907-08 “were not likely to be less than £84,000.” How very much less they actually proved to be I have shown.

At an extraordinary general meeting held on September 13 last (1911), it was decided to liquidate voluntarily, and to reconstruct the company.

Great hopes were at one time entertained with regard to the Lobitos Oil-fields, to work which a London company was formed at the end of 1908. Unfortunately, progress has not been by any means rapid, nor have the results achieved come up to expectations. For the first year 42,653 tons of crude oil were produced, the shipment being 36,131 for the same period ; for the second year the production amounted to 57,226 tons, and shipments to 52,789. For 1910, however, the amount of oil produced was 3,882 tons less than the production for 1909, but, on the other hand, the “net operating income,” to use the curious verbiage employed in the Directors’ report, was £1 4s. 11d., as compared with £1 0s. 8d. per ton for the previous year. This should be considered a very excellent average per ton, as even in East Virginia, where the best results are admittedly obtained, the profit rarely exceeds £1 10s. per ton. For the first six months of the current year, 1911, the output has been 23,995 tons, a decrease of 4,547 tons as compared with the corresponding period in 1910. It seems to me that expenses of working are altogether very high, and that too much money is being spent upon unnecessary development.

A probable reason, moreover, for the decline in the production in this Company’s fields is the fact that the attention of the management on the fields has been too much deflected from the production of oil from the shallow wells to the work of sinking a number of deep wells ; and, additionally, that the old, shallow wells,

which have been worked for some time, are now becoming exhausted.

The Backus and Johnson's Brewery Company, Limited, which has been in existence for about twenty years, enjoyed a better twelve months for 1910 than it had known for several years, the gross profits amounting to £26,618 18s., and leaving the Directors with the sum of over £20,000 for distribution in the shape of net profits. It is not at all improbable that within a short time the Directors may decide to pay off the 7 per cent. Income Debenture Stock, which was raised at a time when additional capital was very difficult to obtain, and when the management of the concern at Lima was at its very worst. The Income Debenture Stock can be redeemed at any time at 105 per cent. by giving six months' notice. There is only £57,000 worth of this stock issued, and as it stands in the market to-day at 93-96, a purchase would prove a very profitable enterprise, since the investor would obtain nearly 6 per cent. for his money, and would realize a profit of £10 or £12 per share when the Debentures were paid off. The financial position of the Company is now so strong that the Directors would be able to raise any further money they may require at a considerably lower rate of interest than 7 per cent. At the end of July last (1911) the cash books, both in London and in Lima, showed a balance in hand exceeding £21,000, which proves that there is more money available than is actually required for the running of the business.

For many years the ordinary shareholders have not received anything in the way of dividends, and there is an accumulation of nearly 94 per cent.—equal to £102,575 in arrears. This year a beginning has been made in paying off something of these, and 1 per cent.—not a particularly large proportion—has been distributed among the shareholders, who are entitled to receive—when earned

—7 per cent. per annum. The Founders' shares, of which there are but 100, and which are entitled to a proportion of the residue of profits, have received nothing since 1891, and it will probably be some years before they receive anything again.

The Peruvian Cotton Manufacturing Company, Limited, which is practically an offspring (or shall I say *protégé*, of the Peruvian Corporation?), had a very successful year for 1909-10, the dividend paid a few months ago greatly exceeding that of any previous twelve months. The nominal capital of the Company is £100,000, and of which only £80,000 has been issued. There are no debentures, and no other class of securities than the Ordinary shares, while the Reserve Fund amounts to £30,000. On the other hand, the Company, which is also affiliated with the Inca Cotton Company, have subscribed £20,000 out of the total of £55,000 of Debentures raised for the purpose of providing additional machinery for that Company. The Peruvian Cotton Manufacturing Company has been enabled this year to pay a dividend of 8 per cent. free of Income Tax, and to carry forward over £2,300 to next account. The net profit earned amounted to £13,662.

APPENDIX

Immigration—Concessions and concessionaires—Colonies and settlements—Lands (montaña) and forests—Civil rights of foreigners—Landed property of foreigners—Property of deceased foreigners—Foreign trade-marks—Registration of trade-marks—Mining (summary) extracts from certain laws—Colonists arriving—New rubber tax (1911)—Accidents to workmen—Insurance of workmen—Workmen's compensation.

IMMIGRATION LAWS.

ALL foreigners (with the exception of the Chinese) have the right of entry into Peru, and they enjoy the same security and privileges as those granted to Peruvian subjects, while they have full liberty to buy, sell, or transfer their goods as they may think fit.

An Executive decree was issued on May 14, 1909, prohibiting the entrance into Peru of Chinese immigrants having less than £500 in cash. Chinese emigrants *en route* to Peru at the time of or before the issuance of the decree were excepted from the effects thereof. Towards the close of 1909, the Government put into force rules by which the promiscuous entry of Chinese manual labourers was restricted, and at the same time it passed laws for the alienation of public lands, so that the promotion of colonization and the stimulation of immigration into the country of a more desirable class of immigrants would be facilitated.

LAWS RELATING TO CONCESSIONAIRES.

For the purpose of attracting capital to enterprise, and also of removing it from abroad, the Government of Peru has been accustomed to granting favourable concessions to those who will undertake the development of works of public improvement. These concessions carry with them an obligation to build works and the right to enjoy the profits of

them under certain conditions. The contractor deposits a bond with the Government as a pledge of his intention to proceed with the construction which is the subject of the agreement. Generally a concession, to be effective, must be ratified by a Constitutional Congress; but that body has clothed the Executive with the right in certain cases to grant concessions for the public benefit without first obtaining Congressional sanction. The Congress of 1891 authorized the Supreme Government to grant concessions in accordance with the terms of certain contracts already made. This wise provision, especially in the interests of agriculture, promises to Peru the highest form of development of which the country is susceptible in that class of wealth which secures the most stable foundation to the State.

The development of the agriculture of the north has been considered so essential to the prosperity of Peru that some extremely advantageous provisions have been incorporated in the concessions relating to these regions. Thus, where the work is declared to be for the public weal and advantage, every landowner whose land is accessible to the waters of irrigation must pay the water-rent, whether he takes the water or not. The land and crops, also all capital invested in the estate, are made security for the payment of rents, and may be seized to satisfy them. An equitable arrangement has been devised, by which the fertile lands of the pampas may be "expropriated" by paying a nominal price.

COLONIES AND SETTLEMENTS.

The first legislative measure regarding the establishment of Colonies or Settlements was enacted by the Peruvian Congress in 1898, and was modified and improved by the laws of 1909 and 1910. By these Acts the Executive is authorized to make use of certain vacant lands for colonization, either by Peruvians or foreigners coming to the country with the intention of becoming residents, provided such foreign residents follow a trade or industry. State lands may also be conceded to individuals or corporations to encourage public works, such as road-making, irrigation works, or railway building. The coastal lands are largely privately-owned or are in the hands of native communities whose possession dates back to the ancient Chimu civilization, and was recog-

nized in turn by the Incas and the Spanish conquerors; these community lands rarely change hands. State-lands of the coast region may be sold or granted upon terms based upon the extent to which their use will benefit the country.

MONTAÑA LANDS.

On May 29, 1908, the President of Peru issued a decree abrogating all previous decrees and resolutions of a general character concerning the exploitation of leased lands in the "montaña" containing timber, rubber trees, and other similar products, the improper exploitation of which had become prejudicial to the interests of the nation. The decree remained effective until the proposed law on the subject which pending the action of Congress, was enacted, and the proper rules and regulations issued governing the operation of these lands. Concessions granted and contracts entered into in accordance with the laws in force at the time they were made were not affected by this decree. Money paid into the Public Treasury on account of application under consideration at the time of the issue of the decree was refunded to the parties interested.

Montaña lands may be now obtained by the applicant at the rate of 50 cents (U.S.) (=2s.) per hectare (1 hectare = 2.4711 acres), not over 1,000 hectares being granted to any one person without special Legislative sanction. Such grants are in perpetuity, depending, as in mining grants, solely upon the prompt payment of the annual tax, which in this case is 2½ cents (=5d.) per hectare. Non-payment for one year is sufficient cause to cancel the title.

CIVIL RIGHTS FOR FOREIGNERS.

The legal condition of foreigners as regards civil rights in Peru is the same as that of natives. The 32nd Article of the Constitution now in force says: "The laws protect and oblige all persons equally, and the civil rights are independent of the quality of the citizen." This general and ample principle, laid down in the fundamental chart of the Republic, proves that in Peru the civil rights of all persons are respected without any distinction of nationality, and that all those who inhabit the country are under the protection of its laws.

LANDED PROPERTIES OF FOREIGNERS.

Any foreigner can acquire landed property in Peru, and can dispose of it at will ; in general, everything concerning landed property is amply guaranteed by the Peruvian laws. Thus it is that the 28th Article of the Constitution expressly declares that every foreigner can acquire, in accordance with the laws, landed property in the Republic, possessing in everything relating to that property the same rights as the Peruvians enjoy. Thus foreigners can dispose of their property by all the methods which the law permits, on the necessary celebration of any contracts permitted by the laws, without any further obligation than what is laid down in the Code and special laws.

Special dispositions expressly authorize foreigners to denounce mines, obtain concessions of mountain and rubber lands upon the same conditions as Peruvians, subject, of course, to the dispositions in force, which affect the one just the same as the other.

In accordance with the dominant principle in the Peruvian legislation, landed property in Peru is subject to the law of its situation, whatever may be the nature and condition of the owner. In order to guarantee the property and the consequent free disposal of it without fear of there arising, or of there being put forward at any time, any special claims against a property acquired in accordance with the law, there has been recently established in the Republic the Registry of Landed Property, in which this is inscribed with the name of the actual owner, the manner in which it has been acquired, any encumbrances which may exist, and any prescriptive rights which may limit the free disposal of it.

PROPERTY OF DECEASED FOREIGNERS.

The Civil Code expressly recognizes on behalf of all foreigners the right to dispose of their property by will. In the case of the death of a foreigner without having made a will, and if there be no legal heirs, the mode of procedure consists in immediately placing the property under the control of the Consular representative of the nation to which the deceased foreigner belonged. An inventory is then taken and the property is liquidated, the balance, if any, being handed over to the legal heirs, through the intervention of the representa-

tive or Consul of the nation to which the deceased belonged. It is worthy of note that no payment can be made to the heirs until the expiration of six months after the notice of the death has been given.

FOREIGN TRADE-MARKS.

In order to protect the frequent imitations and falsification of foreign brands and trade-marks, and, at the same time, to facilitate manufacturers and dealers in foreign countries securing their goods by registering their trade-marks in Peru, the Government has, in a recent Message, authorized all the Consulates of certain importance to accept directly from owners of trade-marks the "solicitud" (application) of same. This is of more importance principally to those who lack any connection in this country, as the passing of this new decree will enable them to register their marks without intervention of a third party and without the least trouble, because both the Consulates and the Office of Industries, which is a dependency of the Ministry of Public Works, will take charge of the matter until the proper certificate can be handed over to the applicant's solicitor. The only drawback, however, is found in the fact that the "solicitudes" for the registering of trade-marks must be made out in Spanish; but, fortunately, nowadays, a translation is a matter that can be done practically everywhere with no great difficulty.

The fees for the registration are quite moderate, and are as follows:

- £2 10s. for registration, including certificate,
- 8s. for the publication in newspapers,
- 1s. 7d. for stamped paper,

which makes a total of less than £3 for the whole service.

The Consulates will be also bound to receive and attend to all claims and complaints in the event of imitations and falsifications, and the Peruvian Government will prosecute and punish all violators of the patents without charging anything to the interested parties.

For the adequate protection of the proprietary rights in trade-marks registered in Peru, the President of the Republic, on September 10, 1909, formally decreed that—

On the last day of each month the Division of Industry

of the Department of Fomento shall issue a statement covering such trade-marks as have become void through expiration of the ten-year guarantee granted by Peruvian law. Said trade-marks shall not be renewed to other than the previous owner in less than three months from the publication of the statement referred to, unless so requested by the proprietor.

Each mark requires a separate registration, but slight modifications of registered marks may be permitted, providing publication of the same, with modifications, be made for five consecutive days in *El Peruano*.

If two requests for the registration of the same mark are received at the same time, preference is to be given to the foreign applicant who had first made use of it. In case it had not been previously applied, the native owner shall have preference. If both applicants are native or foreign, preference shall be given to the one who first established the industry to which the trade-mark refers.

For the presentation of a claim before the Ministry of Fomento in regard to falsification or imitation of a trade-mark, it is not necessary that it be made by the manufacturer himself. Any manufacturer or consumer who considers himself injured by the falsification or imitation is empowered to denounce and prosecute.

SUMMARY.

MINING LAWS.

The Mining Laws of Peru are well-planned and are fairly administered. Very briefly put, they provide that the owner of the soil has title to slates, sandstones, building stones generally, gypsum, sand-potter's earth, earth containing magnesium and aluminium, and peat and phosphates. When found on Government lands the Government may either work them or issue a concession to work them. Guano, salt deposits, and salt-water wells are State property. Nitrates, borates, and alkaline salt deposits of mineralized or fossilized substance can be acquired by petition or denouncement, as can also water, slags, or tailings. Mining property is irrevocable so long as the mining-tax is paid, and perpetual as common property.

The unit of the mining claim, or the *pertenencia* of 100 by 200 metres, is 2 hectares of 4·94 acres, in the form of a prismatoidal solid of indefinite depth. In placers, coal and petroleum deposits, the *pertenencia* measures 200 × 200 metres, or 9·88 acres. A concession may embrace up to 60 *pertenencias*. Prospecting and exploration concessions are granted in size from 60 to 600 *pertenencias*, but one person or company may obtain several such concessions. These are granted for one year, but the term may be extended for another year. A small tax of 2s. per hectare per annum is paid on prospecting grants. Mining concessions pay £3 per *pertenencia* per annum, payable half-yearly. Non-payment during three successive half-years cancels the title, but arrears may be paid before that time, with 50 per cent. fine for any part of a half-year overdue, and 100 per cent. for that a full year overdue. (*See further reference under Chapter IV.*)

Any Peruvian citizen or foreigner capable of owning property in the Republic may acquire mining property, excepting certain officials having to do with the issue of titles or local administration, and also excepting employés, who are not permitted to denounce mines situated within 10 kilometres of the nearest point to their employer's property. The right exists of expropriation of surface-area for necessary buildings, shafts, etc.

MINING CODE.

Until 1900 the old Spanish Code (the "Ordenanzas") was in force, greatly modified by several laws passed at different periods. This Code, being antiquated, did not contemplate the conditions met with in modern mining, and lacked unity on account of the many alterations introduced. The actual Mining Code is a decidedly liberal one, making the acquisition of mines both an easy and an inexpensive matter. This Code, which became effective January, 1901, comprises the following chapters:

I., On Mining Property; II., Prospecting and Exploration; III., Unit of Measure, Extension and Form of Mining Concessions; IV., On Mining-Taxes; V., On Mining Administration and Jurisdiction; VI., On Persons Capable of Acquiring Mining Property; VII., On the Proceedings to be Observed in Petition of

Claims ; VIII., On the Relations between the Concessionaire of a Mine and the Owner of the Soil ; IX., On the Relations between Mine-Owners ; X., General Adits for Exploitation, Transport, Drainage, and Ventilation ; XI., Concessions for Reduction Works, of Land for their Construction, and of Water ; XII., On Rights of Ways ; XIII., Mining Companies ; XIV., On Mortgage and other Contracts ; XV., On Technical Functionaries ; XVI., Mining Lawsuits ; XVII., Expropriation and Indemnification ; XVIII., Transitory Dispositions. (*See further reference under Chapter VI.*)

A short summary of the most important of the chapters above referred to is given hereunder :

CHAPTER I.: *On Mining Property.*—This chapter specifies what kind of mineral or fossilized substances may be obtained in accordance with the actual Code ; those which belong exclusively to the owner of the soil ; and those which are not the subject of petition.

The owner of the soil has exclusive title to all silicious rocks, basalt, calcareous soil and rocks, serpentine, marble, alabaster, porphyry, jasper, and generally all analogous building and ornamental materials ; gypsum, sand, marls, kaolin, emery, argillaceous and fullers' earth, earth-containing pyrites, aluminium and magnesium, steatite, calcareous phosphates and peat. All these substances are deemed to be of common profit when found on State or city council's lands, the Government or those corporations being empowered to regulate their working or to issue special concessions.

Guano, salt deposits, and salt-water wells are considered State property.

Nitrates, borates, and alkaline salt deposits are subjected to special laws.

All other deposits of mineralized or fossilized substance can be obtained by petition in accordance with the proceedings of the Code.

Water, slags, tailings, and waste can also be acquired by petition.

Mining property legally acquired is irrevocable, and as perpetual as common property. The only cause for cancellation of title is the non-payment of the mining-tax. (*Chapter IV.*)

CHAPTER II.: *Prospecting and Exploration.*—Special concessions are granted for the purpose of prospecting and exploring. Each concession can embrace from 60 to 600 claims, and the same person or company can obtain several concessions of that kind, so as to cover all the land required. These concessions are only granted for one year, but the period can be extended for another year. A small tax of 1 *sol* Peruvian (2s. or \$0.50 gold) per hectare per annum has to be paid.

CHAPTER III.: *Unit of Measure, Extension and Form of Mining Concessions.*—The “claim,” or *pertenencia*, is the unit of measure for mining concessions, and except in the cases mentioned later on, is considered as a prismatoidal solid of rectangular base with an extension of two hectares (approximately five acres) having one side of 200 metres and the other of 100, measured horizontally in any direction which the petitioner may point out, and of indefinite depth in the vertical direction.

In placers, coal and petroleum deposits, and the analogous ones of gold, platinum, tin, etc., a claim embraces 4 hectares (approximately 10 acres), the base being a square with sides of 200 metres.

The mining concession applied for by the petitioner may embrace any number of claims up to sixty.

The other articles of this chapter deal with the grouping of claims, and the spaces smaller than one claim (*demasias*) remaining between concessions.

CHAPTER IV.: *On Mining-Taxes.*—All mining concessions shall pay an annual tax of 30 *sols* (£3) for every claim (*pertenencia*) included within their perimeter. The payment shall be made in two equal parts, one every six months, the first term ending on June 30 and the second on December 31. The non-payment of the contribution during three half-years causes the cancellation of the title to the property, but before the expiration of those three half-years the arrears may be paid with a surcharge of 50 per cent. for that part unpaid a half-year, 100 per cent. for part unpaid for two half-years, and, of course, none for the third.

CHAPTER V.: *On Mining Administration and Jurisdiction.*—The administrative and economical mining control corresponds: To the Executive power represented by the respective Department; to the Superior Mining Council; to the Territorial

Deputations; and to the functionaries or authorities who may represent them.

There are Territorial Deputations or Delegates in all important mining districts, whilst in places where neither Deputation nor Delegation exists, their attributes are discharged by the judge of the lower court of the province.

The territorial mining functionaries above indicated, who may be foreigners, decree and decide upon everything respecting concessions, possession, and measurement of mines within their jurisdiction. They attend to the formation and registration of the titles of mining concessions, and act as superior mining police in the prevention of accidents. They determine in a lower court, sitting with the powers of a private judge, all mining litigation with respect to concessions, measurements, etc., as well as disputes between employer and labourer. They are assisted by a mining engineer, surveyor, or an expert. From the decisions of the territorial mining functionaries, appeal may be made to the Supreme Government or to the Supreme Court of Justice, as the case may be.

CHAPTER VI.: *On Persons Capable of Acquiring Mining Properties.*—Any Peruvian citizen or foreigner capable of owning property in the Republic may acquire mines in the form established under the present Code, excepting the functionaries directly intervening in the formation of the mining-titles or exercising local authority. Employés and mining labourers cannot acquire mining property by means of denouncement unless it be for their employers, except in places located at more than 10 kilometres' distance from the nearest point to the latter's property.

CHAPTER VII.: *On the Proceedings to be Observed in Mining Petitions.*—Any person or company wishing to acquire a mine in accordance with the Code shall apply in writing to the Deputation or Delegate, mentioning his name, his nationality, and abode, and affording a description of the mine asked for, so that it may be recognized with certainty at any moment; adding the name he may wish to give it, the provisional number of claims whose assignment he desires, and the name of the neighbours or nearest contiguous mine-owners. He will pay the sum of 5 *sols* (= 10s.) as rights of denouncement at the time of the presentation of his petition.

The Deputy Delegate, or Secretary, inscribes the denouncement in the Register, and gives to the petitioner a certificate of the petition indicating all the particulars, as well as the day and hour upon which the said petition was submitted. Within three days the Delegate shall issue a decree respecting the denouncement, and shall cause the respective advertisements and placards to be published. The admission of a denouncement by the Delegate gives the right of occupation provisionally of the solicited claims from the date of their inscription in the Delegation Register. No other denouncement respecting the same ground, water, slags, mine dumps, or deposits will be admitted, should no petition against the concession have been presented.

Within thirty days following the official registration of the petition, this is to be advertised by means of placards in the Delegation's office doorway, and in the newspaper published at the place of residence of the Delegation, as well as in that in the Capital of the Republic, designated for that purpose by the Superior Mining Council.

Possession shall be applied for after the expiration of the third month and before the end of the fifth month. During these five months objections can be made, examined, and decided upon. The possession is given on the ground by the Delegate, assisted by the Secretary and the official engineer or surveyor, who measures the land, stakes the claims, and presents a report accompanied by a full plan. The titles thus completed are sent to the Mining Department for approval, and after that the mine is inscribed in the General Mining Register.

Articles 141, 142, 143 to 151 deal with the water-supply and concessions for generating power. They are extremely reasonable, and there is no tax on these concessions.

It is not deemed to be necessary to deal with any of the other chapters of the Mining Code; what has been set forth previously is sufficient to demonstrate how easily mines can be acquired in the Republic of Peru in accordance with prevailing terms of the Code.

The Supreme Government, through the Department of Fomento (Promotion), directly supervises the adjudication of mining concessions of all classes, and the Minister of Fomento has in his charge the formation of the "Padrón

General de Minas," which is the official Register for the inscription of all concessions.

The importation of machinery, supplies, tools, etc., for use in mining operations, is exempt from Custom House duties, and the same is the case in regard to coal, lumber, dynamite, mercury, and all material necessary for the construction and maintenance of roads.

In 1902 the Corps of Mining Engineers was created for the purpose of the further development of Peruvian mines by exploring and making known, by means of Commissions, new mineral districts, describing also the geological formations and magnitude of the lands explored. The results of these important works are published in special pamphlets profusely illustrated with photographs and maps, and which may be obtained, usually without charge, but at any rate, at a very small price, from the Government of the Republic at Lima, Peru; or by communicating with the Bureau d'Information de la République de Peru, 6, Boulevard de la Madeleine, Paris.

LAW RELATING TO COLONISTS ARRIVING.

A Presidential Resolution, dated June 17, 1910, was issued, through the Ministry of Fomento (Promotion), concerning sanitary measures for the protection of the health of those who come as colonists. The resolution states that in all contracts of companies or individuals with the Government to establish colonies, the following regulations must be complied with:

First.—Colonists, before embarking, must be examined by a physician selected by the Peruvian Consul, who will give health certificates, which the Consul will legalize free of charge.

Second.—Those who have passed this examination must then be vaccinated.

Third.—The Peruvian maritime sanitary regulations must be complied with during the passage from port of origin to Peru.

Fourth.—On arrival, colonists will have to present their certificates to the Medical Inspector boarding the vessel.

Fifth.—The contractors are obliged to engage a physician and to supply medicines, as their contract declares.

Articles *six, seven, eight, and nine* refer to the location of the colonists' houses on dry land, with an ample running water-

supply near by, and with doors and windows properly protected by wire-screens.

Tenth.—A hospital, also wire-screened, must be established in each colony, with a pharmacy, containing the necessary drugs and remedies.

Eleventh.—The colony physician will not only have charge of those who are ill, but also of the general hygiene of the community; the inspection of food and drink; and the prevention of infectious diseases, particularly of those most frequent in tropical regions. He must be supplied with the necessary medicines and apparatus, and also attend to the vaccination and re-vaccination of the colonists.

NEW RUBBER TAX.

By Executive Decree, dated May 10, 1911, a new law governing the exportation tax on crude rubber was promulgated. It provides that all rubber exported (*jebe fino*; *sernambe de jebe*; *caucho*; and *sernambe de caucho*) shall pay an 8 per cent. *ad valorem* tax, based on the quotation prevailing on the Liverpool Market. Settlement of this tax may be effected in exchange on London, Paris, and New York at ninety days' sight at the rate of exchange ruling on the day of exportation.

LAW IN CONNECTION WITH ACCIDENTS TO WORKMEN, PROMULGATED ON JANUARY 20, 1911.

The employer is responsible for all accidents caused to his workmen and employees whilst performing their duties in respect of the following industries:

Production and transmission of electric, steam, gas, or other kind of power-producing mechanical energy; electric or gas-lighting services; fixing, repairing, and dismantling of electric or lightning conductors; fixing, maintenance, and repairing of telegraph and telephone lines; naval construction and repairing; construction, repairing, maintenance, and working of railways, bridges, and roads; land-transportation and water-transportation on the rivers or lakes, provided it is done by mechanical traction; agricultural work, where other than human power is utilized, only in respect of the workmen exposed to the danger of the engines; loading and unloading

wharf-companies, with mechanical apparatus worked by other than human power; mines, where more than thirty-five men are employed; building, repairing, and demolition companies; factories, workshops, and industrial establishments. In works carried out for account of the Government the contractor will be the only person responsible.

This Law only refers to workmen and employees in receipt of not more than £120 per annum.

All employers of any kind of industry, and no matter what the salary of the victim, are obliged to render medical aid to their employees in regard to the accidents which may occur to them.

When the accident causes death the employer is obliged to pay the funeral expenses, and deposit an amount equal to two months' salary of the victim.

Indemnification.

The workmen and employees who have been the victims of accidents have a right to the following indemnifications: (1) If absolutely and permanently incapacitated, to a payment for life equal to 33 per cent. of the annual salary; (2) if partially and permanently incapacitated, to a payment for life equal to 33 per cent. of the difference between the salary which was paid previous to the accident and the inferior salary which would be received on account of the accident; (3) if absolutely and temporarily incapacitated, to a payment equal to 33 per cent. of the salary he was in receipt of, at the time of the accident, during the time that he cannot work; (4) if partially and temporarily incapacitated, to a sum equal to 50 per cent. of the difference between the salary previous to the accident and the inferior salary he would receive until completely cured; (5) in the event of death the employer is obliged to make certain payments to the relatives of the victim; (6) the indemnities will be increased by 50 per cent. if the accident is caused by the lack of the respective protective apparatus.

Insurance.

The employer may insure, individually or collectively, his employees without making any deduction from their wages, instead of paying the indemnifications referred to, provided

the amount which the victim receives is not less than that stated in this law.

The Executive will form an Insurance Company, guaranteeing the interest of 8 per cent. per annum on a capital of £20,000, to be employed exclusively in insuring against accidents to workmen and employees.

Consular Regulations.

Packages must be plainly marked with either a stencil or a brush.

A Consular invoice, in quadruplicate, is necessary, and must be made in Spanish.

Goods may be consigned either *direct* or *to order*.

Callao is the only port where explosives, firearms, revolvers, etc., may be landed, unless special permit has been obtained by consignee.

The Consul keeps one copy of the bills-of-lading and three copies of the Consular invoice.

The gross weight, in kilogrammes, should be marked on every package (1 kilogramme=2·2046 pounds), and must correspond with the gross weights stated in bills-of-lading and Consular invoices.

PERUVIAN CABINET CHANGES, SEPTEMBER, 1911.

Upon the eve of going to press with the final pages of this volume, notification has been received of important changes in the Peruvian Cabinet, and I am indebted to Señor Don Eduardo Lembcke, the Chargé d'Affaires of the Legation and Consul-General for Peru in London, as well as to Señor Don Carlos Larrabure y Correa, Chief of the Oficina de Informaciones Inmigración y Propaganda del Gobierno del Perú, at Paris, for the following list of the new Ministry :

Prime Minister and Minister of Justice and Public Instruction : Señor Dr. Agustin Ganoza.

Minister for Foreign Affairs : Señor Don German Leguía y Martínez.

Minister of Home Affairs and Police : Señor Dr. Juan de Dios Salazar y Oyarzabal.

Minister of Finance and Commerce : Señor Dr. Agustin de La Torre Gonzales.

Minister for War and Marine : Señor Don Juan Manuel de La Torre.

Minister of Industry ("Fomento"): Señor Dr. Daniel Castillo.

Dr. Agustin Ganoza, President of the Cabinet and Minister of Justice and Public Instruction, was born at Trujillo, and he had previously served under President A. B. Leguía as Minister of Government. He has also acted with great distinction as President of the Chamber of Senators, where he has sat as representative of the Department of La Libertad.

The eminent career of Señor Don German Leguía y Martínez, Minister of Foreign Affairs, has already been given in the earlier pages of this volume (see pp. 26, 27, Chapter III.).

Dr. Juan de Dios Salazar y Oyarzabal, Minister of Government and Police (Minister for Home Affairs, etc.), is a famous lawyer, and sits as Deputy in the House of Congress for Jauja, where he was born. He has filled several important public positions, and latterly was Secretary of the Junta Electoral Nacional (National Electoral Council).

Dr. Agustin de La Torre Gonzales, Minister of Finance and Commerce, is also a prominent lawyer connected with the Supreme Courts of Justice at Lima, and formerly acted as Minister upon several occasions. He is also an ex-President of the High Court of Exchequer.

Don Juan Manuel de La Torre was born at Cuzco, and represents one of this Department's electoral divisions in the House of Deputies. He has acted with conspicuous ability as President of this last-named Chamber during the Preliminary Council sittings held this year.

Dr. Daniel Castillo, Minister of Industry ("Fomento"), is a highly distinguished advocate, born in Lima, and sits in the House of Deputies as representative of the Province of Pomabamba.

ESTIMATES FOR THE YEAR 1912.

Revenue	...	...	...	...	£P3,209,237
Expenditure	...	...	...	...	2,879,924
Surplus	...	...	...	...	329,313

The Revenue is estimated as follows : Customs (maritime), £P201,582; Customs (rivers), £P260,000; Contributions, £P669,550; monopolies, £P601,957; fiscal wharfs and piers, £P14,859; various rentals, £P194,289; telegraphs,

£P30,000; posts, £P97,800; Contributions (Peruvian), £P12,000; Bureau of Deposits and Consignments, £P6,500; Cereal Deposits at Bella Vista, £P10,700; and stocks £P1110,000.

RÉSUMÉ OF PERU'S COMMERCE FOR THE THREE YEARS
1908-1910 INCLUSIVE.

	1910.	1909.	1908.
	£P.	£P.	£P.
Exports	6,408,282	6,492,670	5,478,941
Imports	4,631,280	4,298,627	5,311,973
	11,039,562	10,791,297	10,790,914

IMPORTS.

Year.	Viá the Amazon.	Viá the Pacific.
	£P.	£P.
1902	250,928	3,816,615
1903	298,285	4,940,698
1904	570,683	4,803,954
1905	560,027	4,370,772
1906	639,724	3,797,669
1907	715,797	3,786,655
1908	371,275	3,485,096
1909	482,012	3,177,355

Among articles imported into Peru during 1909, having a value in excess of £P10,000, were the following: Minerals and metals, £P566,741; textiles (cotton), 493,885; steamboats, 274,248; wheat, 269,067; textiles (woollen), 201,624; mineral coal, 194,101; lumber, 192,502; machinery and parts, 171,953; drugs, 146,885; stones and earth, 133,825; paper, etc., 116,319; flax and jute, 93,663; rice, 84,015; unspecified articles, 79,401; foodstuffs, 78,502; wines and liquors, 75,993; petroleum, 58,929; textiles (silk), 57,358; boots, 55,854; wax candles, 51,773; thread, 49,063; preserved and dry fish, 44,450; vegetables and vegetable substances, 41,387; hats, 39,270; cereals, 38,852; oil (other than petroleum), 35,775; perfumery, 30,406; preserved butter, 30,124; arms and accessories, 29,518; fruits, 29,108; carriages, 27,892; instruments and apparatus, 27,654; pre-

served milk and cream, 26,939; ordinary soap, 24,931; fresh and preserved meat, 24,260; paints and varnish, 24,019; rope, 23,799; dyes, 22,120; jewellery, 22,034; salt, 16,152; biscuits, 16,059; tobacco, 15,270; sugar, 14,762; sweets and confectionery, 10,611.

The Customs Revenue for 1909 amounted to £P4,298,627, as follows :

Customs House.	Value of Imports.	Per Cent.
	£P.	
Callao	2,709,321	63·03
Iquitos	477,468	11·10
Mollendo	473,914	11·03
Salaverry	182,565	4·25
Paita	134,791	3·14
Eten	110,344	2·56
Pacasmayo	106,671	2·48
Pisco	86,626	2·20
Ilo	8,306	0·20
Leticia	4,544	0·11
Buena Vista	2,009	0·04
From other Customs	2,068	0·04
	4,298,627	100·00

It is with considerable satisfaction that British readers will observe that England occupies the premier place upon the list of imports into the Republic. The figures stand as follows :

Country.	Value of Imports.	Per Cent.
	£P.	
England	1,567,898	36·47
United States	846,127	19·73
Germany	687,233	15·98
Belgium	247,325	5·75
France	195,597	4·53
Chile	182,202	4·23
Italy	150,711	3·50
Australia	117,864	2·74
Hong-Kong	90,921	2·12
Spain... ..	52,519	1·22
Ecuador	33,982	0·79
East Indies	31,843	0·74
Portugal	28,809	0·67
China	20,245	0·47
Other Countries	45,369	1·06
	4,298,627	100·00

If the various totals of Peru's trade with Great Britain, including England and her Colonies and India, be added, we find that the considerable total of £P1,808,526—or, say, 42·07 per cent. of the whole of the Republic's foreign Import Trade—is reached.

The principal imports from Great Britain have included: Textiles of cotton, textiles of wool; coal; machinery and accessories; explosives; hemp and jute and manufactures; drugs; stones and earth; yarn and thread; vegetable products; boots and shoes; hardware; wines and liquors; milk and dairy products; paper and manufactures; rice.

The principal imports from the United States have included: Machinery; wood; vehicles; tar, pitch, etc.; drugs; stones and earth; lard; paper and manufactures; hardware; arms and ammunition; oils; textiles (cotton, wool, silk, and others); meats; breadstuffs, etc.

EXPORTS.

Customs House.	Value of Exports.	Per Cent.
	£P.	
Callao	1,516,009	23·35
Iquitos	1,029,708	15·85
Mollendo	591,593	9·12
Paíta	461,881	7·11
Salaverry	456,278	7·02
Pisco	371,546	5·72
Eten	307,927	4·74
Tambo de Mora	247,772	3·81
Cerro Azul	188,719	2·90
Supe	185,544	2·85
Huanchaco	169,287	2·60
Talara	146,623	2·25
Agencia Aduanera	122,239	1·88
Huacho	118,507	1·82
Chancay	88,063	1·35
Samanco	71,849	1·10
Chimbote	67,036	1·03
Casma	63,244	0·97
Puno	51,382	0·79
Pacasmayo	51,159	0·78
Madre de Dios	40,724	0·62
Santa	32,536	0·50
Huarmey	28,524	0·44
Lomas	23,770	0·36
Other Customs Houses ...	60,657	0·94
	6,492,670	100·00

As with the Imports, so with Exports, does England stand first in the Republic's trade, as the following analysis of the commerce for 1909 (the latest information which is available) clearly proves :

Country.	Value of Exports.	Per Cent.
	£P.	
England	2,672,540	41·17
United States	1,495,622	23·04
Chile	851,544	13·11
France	539,140	8·30
Germany	350,092	5·39
Bolivia	203,038	3·13
Japan	88,038	1·32
St. Lucia (B.W.I.)	70,366	1·08
Spain... ..	44,383	0·68
Belgium	42,192	0·64
Other Countries	137,447	2·14
	6,492,670	100·00

The subjoined articles exported relate to values exceeding £10,000 in each case: Cotton, corn, and cotton waste, £P1,245,599; sugar, 1,159,099; rubber and resin, 1,134,557; metals, 1,037,592; minerals, 600,588; wool, 394,346; guano, 155,224; petroleum, 151,676; hides and dried hides, 131,497; hats, 92,800; cocaine, 60,287; rice, 59,908; cotton goods, 36,850; vegetable plants, 31,701; vegetables and vegetable substances, 22,206; coffee, 16,087; live animals, 12,941; unspecified articles, 12,397; manufactured metals, 10,554.

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shows himself not only as a soldier and a diplomat, but also as an explorer, a world-wide traveller, and a sportsman, possessing great powers of observation, a facile and gifted pen, and a keen sense of humour. In a light and breezy style he describes his travels all over the world—from Crete to Morocco, from Ceylon to East Africa. He narrates his experiences of cattle-ranching in America and of lion-hunting in Somaliland, and gives a most interesting account of his adventures in times of peace and war, on active service in South Africa, and on manœuvres at home. The volume is illustrated throughout by original photographs taken by the author.

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