

ULTIMA THULE;

OR,

A SUMMER IN ICELAND.

BY

RICHARD F. BURTON.

With Historical Introduction, Maps, and Illustrations.

VOL. I

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DEDICATION.

TRIESTE, *March* 1875.

MY DEAR SIR,

BE pleased to accept this very inadequate return for the varied information with which you have favoured me, and for all your hospitality and kindness to me at Edinburgh and elsewhere.

You are so well known as a traveller in Iceland, and as a warm and generous friend to the Icelander, that you will not be held responsible for my over freedom of speech, nor for any unpopular opinions expressed in the pages honoured by bearing your name.

Pray believe me,

Yours very sincerely,

RICHARD F. BURTON.

ROBERT MACKAY SMITH, Esq.,
ETC., ETC., ETC.,
EDINBURGH.

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“ SIGNOR, non sotto l'ombra in spiaggia molle
Tra fonti e fior, tra Ninfe e tra Sirene;
Ma in cima al l'erto e faticoso colle,
Della virtù riposto è il nostro bene:
Chi non gela, e non suda, e non s'estolle
Dalle vie del piacer, là non perviene.”

—TASSO, xvii. 61.

“ NOT among nymphs and sirens, founts and flowers,
Not in voluptuous herbage in the shade;
But on the toilsome steep where valour towers
Alone, O Prince, our supreme good is laid;
Who from the paths of pleasure will not raise
His thoughts; nor freeze nor sweat, arrives not there.”

—JAMES.

“ IN somma, ho avuto sempre mai d'avanti agli occhi quelle sante leggi
della Storia, di non osar dire il falso, né temer di dire il vero; e mi lusingo
di non avervi contravenuto.”

—ABBATE CLAVIGERO.

P R E F A C E .

ACCORDING to the fashion of the day, this volume should have been published two years ago, shortly after my return from Iceland. The truth is that before the second third had been written, I found a large fallow of pre-historic study, the Castellieri of Istria, and I could not help putting hand to the work at "Iceland's" expense. But this much of delay is, methinks, a disadvantage rather in popular prejudice than in point of fact. The loss of freshness brings with it not a little gain. Whilst all the scenes and events of a journey, during and immediately after its progress, appear like an unartistic sketch, confused and without comparative distance; time gives perspective, and relation of details, and distinction of light and shade. Moreover, in treating of Iceland there is present danger of misleading the reader, unless due reflection correct hasty work. The subject is, to some extent, like Greece and Palestine, of the sensational type: we have all read in childhood about those "Wonders of the World," Hekla and the Geysir, and, as must happen under the circumstances, we have all drawn for ourselves our own Iceland—a distorted and exaggerated mental picture of what has not met, and will not meet, the eye of sense. Moreover, the travellers of the early century saw scenes of thrilling horror, of majestic grandeur, and of heavenly beauty, where our more

critical, perhaps more cultivated, taste finds very humble features. They had "Iceland on the brain," and they were wise in their generation: honours and popularity await the man who ever praises, the thorough partisan who never blames. But not the less our revulsion of feeling requires careful coercion: it always risks under-rating what we have found so much over-valued, of tinging neutral-hued sobriety with an angry flush of disappointment.

I went to Iceland feeling by instinct that many travellers had prodigiously exaggerated their descriptions, possibly because they had seldom left home. "The most difficult and expensive country in the world" would certainly prove cheap and easy after the Andes and the Haurán. What could be made of "giddy rapid rivers" at most three feet deep, and if deeper provided with ferries? Yet the "scare" had succeeded in making a deep impression: one tourist came to Iceland prepared to cross the streams "in buff," and firmly determined on no account to climb a scaur. "The ruts are only one danger of Icelandic travelling, *the* danger is crossing the streams," says a modern author—how his descriptions were derided by a couple of English officers who had ridden about the Himalayas! What could I think of the "stupendous precipice of Almannagjá," of the "frightful chasm," of the "dreadful abyss, causing the most disagreeable emotions," when also told that men ride up and down the side? Yet another says, "rush for your life" from the unfortunate Strokkur; whilst we are actually threatened with perils of polar bears—half-starved wretches floated ashore upon ice-floes to be slaughtered by the peasants with toy scythes before they can stretch their cramped and numbed limbs. The "horrific deep chasms" of the Reykjavik-Hafnaffjörð road, and the popular sketches, affected me with extreme incredulity. A friend described to me life in Iceland as living in a corner, the

very incarnation of the passive mood ; and travelling there as full of stolid, stupid risks, that invite you to come and to repent coming, not like the swiftly pursuing or treacherously lurking perils of tropical climes, but invested with a horror of their own—such was not my experience.

Shortly after returning to England, I published, in the columns of the *Morning Standard* (October to November 1872), two letters for the benefit of intending tourists and explorers. Written in the most sober and realistic style, and translated into many of the languages of Europe, they gained for me scant credit at home. “Old Identity” again kicked against the goad of “New Iniquity,” and what could I expect? Mackenzie and Henderson, who *would* “feast wondering eyes” upon everything and everybody, had set the example of treating Iceland as an exceptional theme. They found followers: even the hard-headed Scot gallops between Reykjavik and Thingvellir along the edge of a “dreadful precipice,” where I saw only the humblest ravine; and travellers to the age-weary, worn-out Geysir rise at midnight in their excitement to sing those “grand old psalm-tunes, such as York and the Old Hundredth.” Need it be said that Mr Cook’s pilgrim-tourists have done exactly the same thing in the Holy Land?

My matter-of-fact notions were set down as the effects of “Peter Porcupine,” over-“combativeness,” and the undue “spirit of opposition” that characterises an Objector-General, with the “morbid object of gaining popularity by stating something new”—a hasty judgment, which justifies me in writing these volumes, and in supporting my previously expressed views. I can appeal for confirmation to the dozen intelligent English tourists who were in Iceland at the same time as myself: all united with me in deriding their previous conceptions, and in forming the estimate here offered to the public.

My plan throughout this volume has been as follows: The reader, not the critic, is assumed to know as little about the island as its author did before visiting it; and the first impressions are carefully recorded, not only as a *mise en scène*, but for conciseness' sake, so that only differences, not resemblances, may require subsequent notice. Thus the capital and its environs are painted at some length, whilst most authors simply land at the little port, and set out at once for the interior. The cruise to the north coast, and the "Cockney trip" to Hekla and the Geysir are related with less circumstance, but I have added itineraries, as such details have not yet appeared in English. The journey through the eastern country claims considerable space. Critics tell us that African travellers have so much trouble to reach the Unexplored Regions, that they are apt to report all they see at wearying length, and to empty the contents of their journals upon the public. But every mile of new, or even comparatively new, ground deserves careful topographical notices: let the general reader "skip" such photos if he likes, but let them be written at least for the purpose of future comparison. Again, the Icelanders may complain, like the Swiss, that, whilst their country has become a touring-field to Europe, scant attention is paid to themselves. I have endeavoured to remedy this grievance by ethnological descriptions; and though it has been my desire to speak of things, and states of things, not of persons, it has been impossible at times to avoid personalities. And, whilst a wanderer knowing only enough of the language to express his humble wants, whose travels have been limited to a single fine season, has little right *ex cathedra* to pronounce, even in this scanty community, upon religion and politics, upon commerce and civilisation; he is fully justified in quoting as his own the judgments formed by consulting experts and authorities, upon whom his experience, and that "sixth sense" developed

by the life-long habit of observation, have taught him to rely.

There is still much to be done in Iceland, and I flatter myself that the fifteenth chapter, which shows my only attempt at actual exploration, will supply adventurous men with useful hints. The geography, especially of that huge white blot, the south-eastern part, is unknown; and a tyro can be usefully employed there in collecting specimens of botany. The meteorology, again, is highly interesting—does the cold in the “*Insula quæ glacialis dicitur*” increase, as some have supposed, the effect of the “precession of the equinoxes, the revolution of the apsides, variations in the excentricity of the earth’s orbit,” etc.? Or has it increased at all since Saga times? Evidently it would be most interesting to compare the Icelandic glacier-formations with those of Switzerland; and to determine if the rules laid down by the “De Saussure of Great Britain,” the late Professor David Forbes, by Professor Tyndall, and by Mr Whympfer, the conqueror of the mighty Matterhorn, are here applicable. As anthropologists, we ask why a people once so famed for arms, if not for arts, has almost disappeared from the world’s history—is the change caused by politics or religion; is it the logical sequence of monarchy or “media,” of icy winters, of earthquakes and volcanoes, of pestilence and famine? We are curious to learn why a noble poetry should have ceased to sing. And as we have dwelt upon the past, so we would speculate upon the future of the Scandinavian race, which is supposed to be tending to reunion in its old homes, and which, as it enlarges its education, will, like the Slav, take high rank in the European family.

The main object of the book, however, has been to advocate the development of the island. Sensible Icelanders freely confess that the life-struggle at home is hard, very hard, and that the “*Alma Mater*” is a “*Dura Mater*,” but they have not

suggested any remedy for the evil. I hold three measures to be absolutely necessary; the first is the working of the sulphur deposits—not to mention the silica—now in English hands; the second, a systematic reform of the primitive means and appliances with which the islanders labour in their gold mines, the fisheries; and, thirdly, the extension of the emigrating movement, now become a prime need when the population is denser than at any period of its thousand-year history. Concerning that “make-shift,” the pony traffic, and the ill-judged export of sheep and black cattle, ample details will also be found.

No care has been omitted in securing for these pages as much correctness as the reader can expect. Mr Robert Mackay Smith, of Edinburgh, whose name I have placed, with permission, at the beginning of this volume, obliged me with the details of his own travels. Dr Richard S. Charnock, whose extensive reading and access to libraries fit him well for the task, assisted me in the Introductory Section, which treats of Thule. Mr Gwyn Jeffreys kindly examined my little collection of shells; Mr Alfred Newton was good enough to suggest hints concerning a possible “last of the Gare-fowl;” and Mr Watts, of Vatna-, or rather Klofa-, Jökull fame, gave me a list of his stages. My fellow-traveller, Mr Alfred G. Lock of Roselands, kept me thoroughly well posted, at great trouble to himself, in ephemeral literature concerning Iceland. When preparing my manuscript for the press, I found that the notes showed various lacunæ and want of details resulting from lack of time: Mr Jón A. Hjaltalín of the Advocates’ Library, Edinburgh, whose name is sufficient recommendation, consented to become my *collaborateur* in working up the Introduction; and Mr A. H. Gunlögsen has revised the sheets in my absence from home. Of the late Dr Cowie I shall speak in another place. Mr Vincent courteously placed his paper on “Sulphur in Iceland,” at my disposal; and

Mr P. le Neve Foster, Secretary of the Society of Arts, allowed me to borrow from it or to reprint it. Mr William P. Nimmo has brought out the book in the most handsome and liberal form. I thank these gentlemen from my heart, and, at the same time, I warn my readers that all sins of commission and omission occurring in these pages, must be charged upon the author, and the author alone.

Allow me to conclude this necessary preliminary ramble with the lines of good "old Dan Geffry:"

" For every word men may not chide or pleine,
For in this world certain ne wight there is
That he ne doth or sayth sometime amis."

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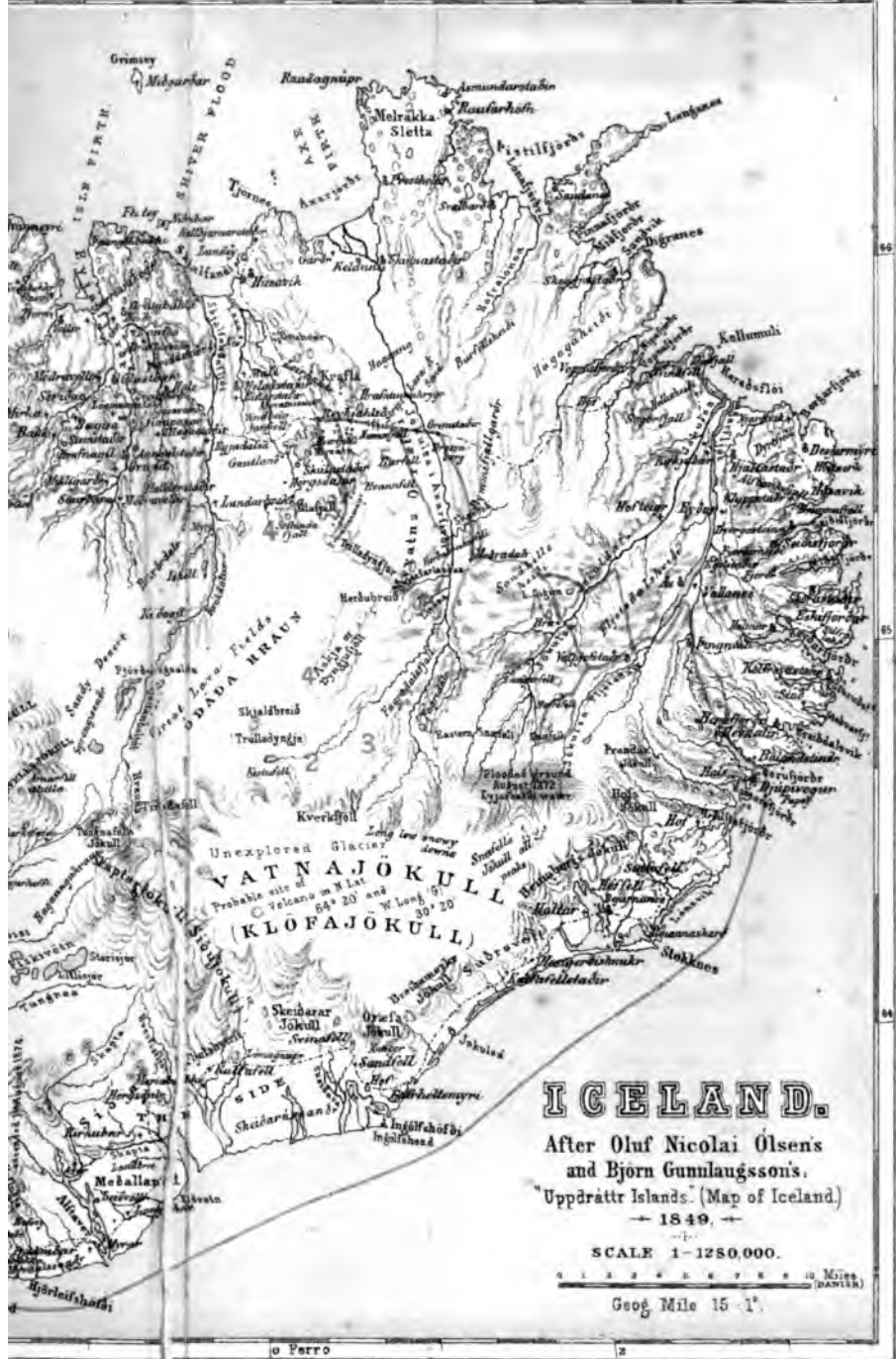
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Flood



Year 1887 and 1888
 Great at the time of
William P. Hur





ICELAND.

After Oluf Nicolai Ølsen's and Bjorn Gunnlaugsson's.

"Uppdrátt Islands." (Map of Iceland)

— 1849. —

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Geog Mile 15 = 1°.

N^o 4. Eruption about Christmas 1874. N^o 5. Eruption 29th March 1875.

M^{rs} Faden & Erskine, Londⁿ Edin^g

ULTIMA THULE;
OR,
A SUMMER IN ICELAND.

INTRODUCTION.

SECTION I.

OF THULE.

BUT is Iceland "Ultima Thule?"

The author hopes to make it evident that "Thule" was used according to date in five several senses—a sufficient reason for the confusion which has so long invested the subject. It has been well remarked that no place is more often mentioned by the ancients than the "island hid from us by snow and winter;" and yet, that no position is more controverted.¹ There has been a "King of Thule," and now there is a "Princess of Thule,"—but where and what is "Thule?"

It will take some time to clear up the darkness which has been heaped by a host of writers upon "Thule," and we will begin by distributing the debated word.

Firstly, It was attributed poetically, rhetorically, and per synecdochen, to the northern "period of cosmographie," and to its people, real or supposed.

Secondly, It was applied to Iceland, and to Iceland only, from the earliest ages of its exploration.

¹ "Mirum de Tyle, quæ inter occidentales ultima fertur insulas, quod apud orientales tam nomine quam naturâ sit famosissima; cum occidentalibus sit prorsus incognita," says Giraldus Cambrensis, chap. xvii., p. 98, ed. T. F. Dimock, M.A., Lond. 1867.

Thirdly, In the centuries when imperial Rome extended her sceptre to the north of "the Britains;" it was given to the outlying parts, Ireland, Scotland, the Orkneys, the Shetlands, and features known only to fabulous geography.

Fourthly, The later Roman writers prolonged it to the "Scania Island," modern Norway, Sweden, and Lapland. This Thule should be called "Procopiana."

Fifthly, Between the establishment of Christianity in England, and the official or modern rediscovery, the term Thule was once more, as of old, limited to Iceland.

I.

"THULE," POETICAL AND RHETORICAL.

The following are popular instances of Thule used in its first sense, the remotest part of the septentrional world, when it was a "fabulosa non minus quam famosa insula." Virgil has only one allusion to it (Georg., i. 30, 31):

"Tibi serviat ultima Thule,
Teque sibi generum Tethys emat omnibus undis;"

but his epithet has been consecrated by a bevy of succeeding poets.

Servius, commenting upon Virgil, explains:

"Thyle insula est oceani inter septentrionalem et occidentalem plagam, ultra Britanniam, Hiberniam, Orcadas;"

which is vague enough. He is afterwards more precise:

"At this island, when the sun is in Cancer, the days are said to be continuous without nights. Various marvels are related of it, both by Greek and later writers; by Ctesias and Diogenes among the former, and by Samnonicus among the latter."

The work of Ctesias here referred to is little known: Thule would hardly enter into Persica and Indica (B.C. 400). Of Diogenes presently. Samnonicus Sorenius was a writer put to death by command of Caracalla (Notes and Queries, t. ii., v. 119, p. 301).

L. Annæus Seneca (ob. A.D. 65) first re-echoes Virgil in the

celebrated "prophetic verses," whose sense has been extended to the New World :

" Venient annis secula seris,
 Quibus Oceanus vincula rerum
 Laxet, et ingens pateat tellus,
 Tethysque novos detegat orbes,
 Nec sit terris ultima Thule."

—*Medea*, 375, *et seq.*

Ammianus Marcellinus (ob. circ. A.D. 390) uses (History, lib. xviii., 6, 31) the adage, "Etiam si apud Thulen moraretur Ursicinus."

Claudius Claudianus (flor. A.D. 395-408) sings :

" Et nostro procul axe remotam
 Insolito belli tremeficit murmure Thulen !"

—*De Bell. Getic.*, 203, *et seq.*

And—

" Te vel Hyperboreo damnatam sidere Thulen,
 Te vel ad incensas Libyæ comitatur arenas."

—*In Rufin.*, ii. 240.

Finally, we find in Aurelius Prudentius (nat. A.D. 348) :

" Ultima littora Thules
 Transadigit."

II.

STRABO, MELA, PLINY, PTOLEMY.

Entering upon the second phase of the subject, it is advisable to consider what has been written concerning Thule, by the four patriarchs of classical geography. With Strabo Thule is Iceland; in Mela it is indefinite; and to Pliny and Ptolemy it is part of Britain, with an *arrière pensée* of Iceland: of Pytheas and Eratosthenes we must also say a few words.

STRABO.

Strabo (nat. B.C. 54; Introduction, vol. i., p. 99, Hamilton and Falconer's translation, Bohn, 1854) tells us, § 2 :

" Thence (*i. e.*, from the Dneiper) to the parallel of Thule, which Pytheas says

is six days' sail north from Britain and near the Frozen Sea, other 11,500 stadia" [a measure which we will assume with Leake to be 700 = 1"].

Again, § 3 :

"But that the Dneiper is under the same parallel as Thule, what man in his senses could ever agree to this? Pytheas, who has given us the history of Thule, is known to be a man upon whom no reliance can be placed; and other writers who have seen Britain and Ierne¹ (Ireland?), although they tell us of many small islands round Britain, make no mention whatever of Thule."

In § 4 :

"Now from Marseille to the centre of Britain is not more than 5000 stadia; and if from the centre of Britain we advance north not more than 4000 stadia, we arrive at a temperature in which it is scarcely possible to exist. Such indeed is that of Ierne. Consequently the far region in which Eratosthenes places Thule must be totally uninhabitable. By what guess-work he arrived at the conclusion that between the latitude of Thule and the Dneiper there was a difference of 11,500 stadia, I am unable to divine."

In book ii., chap. 4, §§ 1, 2, he thus disposes of Pytheas ("by whom many have been deceived") :

"It is this last writer who states that he travelled all over Britain on foot, and that the island is above 40,000 stadia in circumference.² It is likewise he who describes Thule and other neighbouring places, where, according to him, neither earth, water, nor air exist separately, but a sort of concretion of all these, resembling marine sponge, in which the earth, the sea, and all things were suspended, this forming, as it were, a link to unite the whole together. It can neither be travelled over nor sailed through. As for the substance, he affirms that he has beheld it with his own eyes; the rest he reports on the authority of others. So much for the statements of Pytheas, who tells us besides, that after he had returned thence, he traversed the whole coasts of Europe from Gades to the Don. Polybius asks, 'How is it possible that a private individual, and one too in narrow circumstances, could ever have performed such vast expeditions by sea and land?'³ And how could Eratosthenes, who hesitates whether he may rely on his statements in general, place such entire confidence in what the writer relates

¹ The Iernis of Onomacritus (who is supposed to have written about B.C. 535, in the days of Pisistratus). Its authenticity is defended by Ruhnkenius (*Epist. Crit.* 2), and by Archbishop Usher (*Ecclesiar. Antiq.*, chap. 16), while Camden (*Britan.*) has claimed the island to be England. Adrian Junius, a Dutch poet of the sixteenth century, quoted by Moore (*History*, chap. 1), thus alluded to Ireland having been known to the Argonauts :

"Illa ego sum Graiis olim glacialis Ierne
Dicta, et Jasoni puppis bene cognita navis."

We shall afterwards find Sibbald identifying Ierne with Strathearn.

² Consult the paper "On the Stade as a Linear Measure" by W. Martin Leake, Esq., *Journal of the R.G.S.*, vol. ix. of 1839, pp. 1-25. The word Stadium or Stade does not appear in the index of the first twenty volumes; and this is only one instance of the carelessness with which an essential addition to the *Journal* has been drawn up.

³ We may ask in our turn what prevented him travelling with traders?

concerning Britain, Gades, and Iberia!' Says he, 'It would have been better had Eratosthenes trusted to the Messenian (Euhemerus or Evemerus) rather than to this writer. The former merely pretends to have sailed into one [unknown] country, viz., Panchæa, but the latter that he has visited the whole of the north of Europe, as far as the ends of the earth; which statement, even had it been made by Mercury, we should not have believed. Nevertheless Eratosthenes, who terms Euhemerus a Bergæan, gives credit to Pytheas, although even Dicærchus would not believe him.'"

In book ii., chap. 5, § 8, we have a further notice of Thule :

"It is true that Pytheas Massiliensis affirms that the farthest country north of the British Islands is Thule; for which place, he says, the summer tropic and the Arctic circle is all one. But he records no other particulars concerning it; [he does not say] whether Thule is an island, or whether it continues habitable up to the point where the summer tropic becomes one with the Arctic circle. For myself, I fancy that the northern boundaries of the habitable earth are greatly south of this. Modern writers tell us of nothing beyond Ierne which lies just north of Britain, where the people live miserably and like savages, on account of the severity of the cold. It is here, in my opinion, the bounds of the habitable earth ought to be fixed."

Finally, in book iv., chap. 5, § 5, we have the most important notice of all :

"The description of Thule is still more uncertain on account of its secluded situation; for they consider it the northernmost of all lands, of which the names are known. The falsity of what Pytheas has related concerning this and neighbouring places, is proved by what he has asserted of well-known countries. For if, as we have shown, his descriptions of these is in the main incorrect, what he says of far distant countries is still more likely to be false. *Nevertheless, as far as astronomy and mathematics are concerned,*¹ *he appears to have reasoned correctly that people bordering on the frozen zone would be destitute of cultivated fruits and almost deprived of the domestic animals; that their food would consist of millet, herbs, fruits, and roots; and that where there was corn and honey they would make drink of these. That having no bright sun they would thresh their corn and store it in vast granaries, threshing-floors being useless on account of the rain and want of sun."*

The whole question evidently hinges upon the credibility of Pytheas Massiliensis, who travelled about the time of Alexander the Great. It has been ably argued, pro and con, by a host of writers, and in our day by the late Sir G. C. Lewis (*Astronomy of the Ancients*, p. 467, et seq.), and by Sir John Lubbock (*Pre-historic Times*, p. 59). But the dispute has not been settled. I would remark that the old traveller's account is consistent enough.

¹ Hipparchus ad Arat. (i. 5; confer Plat., iii. 17), also attests the scientific worth of Pytheas, and mentions how he explained the tides by lunar phases.

He appears to place Thule under N. lat. 66° (assuming, as Strabo does, the tropic at 24°), a parallel which would pass through the north of Iceland. He is quite right about the absence of fruits. His spongy matter may have been ice-brash, Medusæ, the German *meer-lungen*, or even pumice-stone, which modern travellers have found floating in such quantities upon the sea, within reach of volcanoes, that their movements were arrested. We read that about a month before the eruption of A.D. 1783, a submarine vent burst forth at a distance of nearly seventy miles in a south-westerly direction off Cape Reykjanes, and ejected such immense quantities of pumice that the surface of the ocean was covered with it to the distance of 150 miles, and the spring ships were impeded in their course. Also when Herodotus, a Greek—whose world embraced the Eridanus or Amber River, the Tin Isles, the Arimaspians and the Hyperboreans—could confound snow with feathers, Pytheas, a Marseillais, might be allowed some latitude in describing glaciers. Poverty has not prevented the most audacious journeys; and discovery has been mainly the work of individuals. Geminus (Isagoge, etc., cap. 5) opines that Pytheas was taken to Iceland against his will. The barbarians showed him where the sun set on the shortest day, and rose again after a short interval. Then the sea began to thicken “*pulmonis marini* (πνεύμονι θαλατρίφ) simile.” He afterwards heard that where the sun does not set, is the uttermost part of the world, and cannot be travelled over. Greek *outracuidance* evidently hated to be taught by a kind of Gaul like Pytheas. Strabo, with his captious, bilious, and acrid criticism, is wrong, and Pytheas is right, in a highly important part of the question, the inhabitability of the island. In fact, sundry modern writers have declared that, as far as we have the means of judging, Strabo’s predecessors, Pytheas and Eratosthenes, were more correctly informed than he was concerning the geography of the western parts of Europe.¹ The learned

¹ See *Rerum Script. Hiberniæ* (Prolog., i., xii.), quoted at the end of this section. Of Pytheas we know little, except that he was a Phocæan or Massilian Greek, who is supposed to have made two voyages between B.C. 350 and B.C. 300. In the first, he sailed round Albion and reached Thule. In the second, he set out from Gadir (Cadiz) to the Tanais, which is popularly supposed to have been the Elbe. Both his works, “On the Ocean,” and the “Periplus,” are lost. Even Strabo, who seems to have had “that charlatan Pytheas on the brain,” does not deny his knowledge of astronomy, mathematics, and navigation.

Isaac Casaubon (Commentaries upon Strabo) thus decides the question clean against his author: "Thule—non esse aliam quæ Islandia hodie dicitur, facile doctis viris assentior." He adds that Eratosthenes held Pytheas to be an oracle, but when Polybius and others found his geography loose in points familiar to the Greeks, they pronounced him a liar, and rejected all he wrote.

I must therefore conclude that Pytheas, with all his fables, by Thule meant Iceland, and Iceland only; moreover, that he had acquired some knowledge of the island. Indeed Gosselin opined that both Pytheas and Eratosthenes had had access to the memoirs of some unknown ancient people to whom Europe and its seas were as well known as to ourselves. He argues that this people could not have been Babylonians, Phœnicians, Carthaginians, nor Egyptians. Bailly (Hist. de l'Astr. An., 1-3), entertaining a similar opinion, supposes them, after the fashion of the day, to be Antediluvians.

MELA.

Pomponius Mela (A.D. 41-54; De Situ Orbis, iii. 6) is our next authority. After mentioning Britannia and Iverna, the thirty islands of the Orcades, the seven Hæmodæ (Shetlands) fronting Germany,¹ and the Scandinavian Isle held by the Teutons,² he says:

G. G. Bredow (Untersuchungen, etc., ii. 122-129, Altona, 1800), C. H. Tzschuckius (P. Melæ, lib. tres, Lipsiæ, 1806, vol. iii., pp. 223-230), and J. I. Pontanus (Chorographica Daniæ Descriptio, Amstelodami, 1631, folio, p. 741), give many references to Pytheas. See also Histoire Littéraire de France, i. 71, et seq.; Bougainville (Mémoires de Paris, xix. 146); D'Anville (Mém. de Paris, xxxii. 436, and his objections to the traveller having visited Iceland, 50, 441); Murray (Nov. Comm. Soc. Goetting, vi. 59-63, 82-86); Fournier (Hydrographie, 322, et seq.); and Wagner (Ad Guthrie Allgem. Welt. Gesch., xvi. 4). Forbiger (Handbuch der Alt. Geog., iii., Leip. 1848) also quotes a multitude of authors, including Mannert, Humboldt, and Lelewel (Pytheas u. die Geo. Sein. Zeit., s. 30).

¹ These are the Acmodæ of Pliny (iv. 30), which can only be the Shetlands. Salmasius identifies the Acmodæ, Hæmodæ, and Hebrides. Camden makes them different, and refers the Acmodæ to the Baltic. Parisot informs us that off the West Cape of Skye and the isle of North Uist (the nearest of the Hebrides to the Shetlands) there is a great gulf, which, being full of islands, is still called Mamaddy or Maddy—hence, possibly, the Greek 'Α. Μαδδία, and the Latin Memodæ. According to Dr Charnock, the name in Keltic may be translated the "black head or hill," or the "hill of God."

² Mela's "Scandinovia" is one of six islands which are described rather as parts of a great peninsula than as regular "insulae." Amongst their Sarmatian population are the Oxnæ (egg-eaters), the Hippopodæ (horse-feet), and the Panoti (all-ears), whose existence is attested by credible travellers (Cf. p. 165, Geografia di Pomponio Mela, by Giovanni Francesco Muratori, Torino, Stamperia Reale, 1855).

“Thule fronts the seaboard of the Belcæ (alii Belgæ and Bergæ),¹ an island celebrated in the Greek poetry and in our own. There, as the sun rises to set afar off, the nights are indeed short; but during winter, as in other places, obscure; in summer they are light, because throughout that season (the sun), already raising himself higher (above the horizon), despite not being seen, yet illuminates the nearest parts by his approaching splendour. At the solstices there is no darkness, because then (the sun), becoming more manifest, shows not only his rays, but the greater part” (of his disc).

PLINY.

The next authority is Pliny (nat. A.D. 23, ob. A.D. 79), who makes Thule the northernmost British island. Both he and Cæsar (Bell. Gall., v. 13), placing Mona about N. lat. 66°, declare that the sun does not set in summer, but perpetually disappears during the winter solstice. To the former phase Cæsar assigns thirty days, Pliny six months (*senis mensibus*). The great natural philosopher mentions the Massilian traveller without abusing him:

“Pytheas informs us that this is the case (*i.e.*, the day lasting six months, and the night being of equal length) in the island of Thule, which is six days' sail from the north of Britain” (Nat. Hist., vol. i., book ii., chap. 77, Bostock and Riley, Bohn, 1835).

In book iv., chap. 30, occurs:

“The most remote of all that we find mentioned is Thule, in which, as we have previously stated, there is no night at the summer solstice, when the sun is passing through the sign of Cancer; while, on the other hand, at the winter solstice there is no day.”

Again (*loc. cit.*):

“There are writers also who make mention of some other islands, Scandia, namely, Dumna, Bergos, and, greater than all, Nerigos (or Nerigo, Noreg, *i.e.*, Norway), from which persons embark for Thule. At one day's sail from Thule, is the Frozen Ocean, which by some is called the Cronian Sea.”

Finally, in book vi., chap. 39, we find:

“The last of all is the Scythian parallel,² which runs from the Riphean range

¹ Camden suggests that “Belcarum” was a clerical error for “Bergarum.” But Mela places Bergæ on the confines of Scythia and Asia, and he joins the Caspian with the Northern Ocean (iii. 5).

² To understand the full significance of this sentence, we must consult the context. The first “additional parallel,” whose longest day was sixteen hours,

to Thule, in which, as we have already stated, the year is divided into days and nights alternately of six months' duration."

With these passages before us, it is easy to understand why popular writers generally assume Pliny's Thule to be the Shetland Isles. But he evidently confirms the account of Pytheas, and adds the significant detail about the Cronian or Frozen Sea. It is well established that the ocean south of Iceland is not icy, whilst the northern and western shores are often frost-bound.

PTOLEMY.

Claudius Ptolemy, the Pelusian (flor. A.D. 159-161) notices *Θούλη* in nine places. After correcting (book i., chap. 20, §§ 7, 8,¹ = p. 17²) the errors of Maximus of Tyre, he says (book i., chap. 24, § 4, = p. 19): "Consequently also the parallel passing through Thule shall be laid down as $\nu \beta'$ (52) sections from η to $\zeta \eta$, along the lines of latitude ξ, σ, π ." The same chapter (§ 6, = p. 20) tells us, "Also shall be comprehended the interval between σ and κ southwards, that is, between the parallels passing through Thule and through Rhodes $\kappa \zeta$ (27) sections." Thirdly, the same chapter (§ 17, = p. 22) continues: " κ , through which shall be described the line (of latitude) defining the north, and falling on the island of Thule." Fourthly, in the same (§ 20, = p. 22), we find: "And as $\tau\delta$ *μῆκος* (the longitude) is commensurable with $\tau\delta$ *πλάτος* (the latitude), since upon the sphere whose great circle is five, of these the parallel passing through Thule is about β and δ " (2 $\frac{1}{4}$).

Book ii., chap. 3, § 32, = p. 28, establishes the position of Thule:

"And above them (the Orkades) is the (island of) Thule, whose—

ran through "the Daci and part of Germany, and the Gallic provinces, as far as the shores of the ocean." The second traversed "the country of the Hyperborei and the island of Britannia, the longest day being seventeen hours in length." The third is far more applicable to Iceland than to the Shetland or Færoe groups.

¹ C. Ptolemæi Geographia, edidit Carolus Fredericus Augustus Nobbe, Lipsiæ, 1843. A correct text.

² C. Ptolemæi, etc., libri octo, ex Bilibaldi Pirkeymheri translatione, Lugduni, 1535. When may geographical students hope to see a portable English translation of Ptolemy, and be saved the mortification of carrying about this uncomfortable folio? The work was proposed many years ago to the Royal Geographical Society, and was rejected, I believe, on the grounds of Ptolemy being a mathematical writer. The paragraphs in the text refer to the Greek, the pages to the Latin translation.

Western parts are in	.	.	E. long. (Ferro?)	29°	N. lat.	63°
The Easternmost being in	.	.	"	"	31° 40'	" 63°
" Northernmost "	.	.	"	"	30° 20'	" 63° 15'
" Southernmost "	.	.	"	"	30° 20'	" 62° 40'
And the Mid Isle in,	.	.	"	"	30° 20'	" 63°"

The sixth book (chap. 16, § 1, = p. 113) tells us:

"Serica is bounded west by Scythia beyond the Imaus mountain, according to the line laid down; on the north by an unknown land on the parallel passing through Thule; on the east by regions also unknown, along the meridional line whose limits are:

" E. long. 180°	N. lat. 63°
" 18°	" 35°"

Again we find (book vii., chap. 5, § 12, = p. 125):

"But the northern part is bounded by the parallel which is north of the equinoctial line 63 parts (*i.e.*, N. lat. 63°), and this is described through Thule, the Island. So that the breadth of the known world is 76° 25', or in round numbers, 80 degrees."¹

Lastly (book viii., chap. 3, § 3, = p. 131) we are told:

"But the (Island) Thule has its greatest day of twenty equinoctial hours, and from Alexandria it is distant two equinoctial hours to the west."²

Thus Ptolemy's Thule is a long narrow island, 160 by 35 miles, and his description, despite the times in which he wrote, is applicable rather to North Britain and even to Iceland, than to Scandinavia. He is consistent in his assertions: (1.) That Thule is an island; (2.) That its northernmost point extends to 3° 17' south of the Polar circle (66° 32'); (3.) That it lies north of the Orcades.³ Manifestly we cannot rely upon the longitudes, Ptolemy's first meridian being still *sub judice*. The late Mr

¹ Ptolemy assumes the southernmost part of the old world to be in S. lat. 16° 20' instead of S. lat. 34° 51' 12" (Cape Agulhas). Already in 1800, G. G. Bredow (*loc. cit.*), recognising the imperfect graduation, had reduced Ptolemy's N. lat. 57° to N. lat. 51° 15', and N. lat. 62° to N. lat. 55° 15'.

² Lemprière and other popular books, contain the following curious assertion: "Ptolemy places the middle of his Thule in 63° of latitude, and says that at the time of the equinoxes, the days were *twenty-four hours*, which could not have been true at the equinoxes, but must have referred to the solstices, and therefore this island is supposed to have been in 66° latitude, that is, under the Polar circle." La Martinière, of whom more presently (*sub voce* Thule), makes no such blunder. Ptolemy gives N. lat. 63° and *twenty hours*, in which he is followed by Agathemerus.

³ It is suggested (Notes on Richard of Cirencester) that beginning with the Novantum Chersonesis (Mull of Galloway?), in E. long. (Ferro?) 21°, the latitudes were mistaken for the longitudes, hence Cape Orcas (Duncansby Head?) was thrown to the east, E. long. (Ferro?) 31° 20'.

Hogg suggested¹ that the zero of longitude was not, as usually assumed, at Ferro in the Fortunate Islands (W. long. (G.) 24° 23' 40" to 24° 34'), but at "S. Antonio, Cape Verd Islands" (read São Antão?) in W. long. (G.) 25° 2' 40" to 25° 25' 45"—a change which would give in round numbers a difference of fifty miles.³ Nothing more need be added upon this head. Pytheas and Eratosthenes evidently referred to Iceland; Mela did the same in making it front Bergen; Pliny heard of it when he relates that from Nerigos persons embark for Thule; and neglecting Ptolemy's latitudes and longitudes, his description tallies best with Iceland.

III.

THULE, PART OF GREAT BRITAIN.

Of Thule applied to some part of Great Britain we have a multitude of instances, which are ably and lengthily brought together by Sir Robert Sibbald.⁴ Our writer begins by establishing the fact that the ancients connected the idea of darkness with the north.

"These places of Homer *πρὸς ζόφον* (ad caliginem), and *οὐ γὰρ ἴδμεν θρον ζόφου* (neque enim scimus ubi sit caligo), are by Strabo (ii. § 6) interpreted of the north, "Nescimus ubi sit Septentrio" (We know not where the north is).

He quotes Tibullus (nat. circ. B.C. 54; iv. 1, 154):

"Illic et densa tellus absconditur umbrâ."

And Pub. Papinius Statius (nat. circ. A.D. 61; Sylv., iii., Ad Claudiam Uxorem, v. 20):

"Vel super Hesperiae vada caligantia Thiles."

¹ "On some old maps of Africa, etc.," a valuable paper read before the British Association, August 1863: Herr Kiepert is greatly indebted to it.

² The error "S. Antonio," for "São Antão," is not the learned Mr Hogg's; it is common to Norie and other books on navigation.

³ It is regrettable that geographers lost the excellent opportunity offered by the Vienna Weltausstellung of 1873, to determine in congress a single *point de départ* of longitude for the civilised world. Now each nation has the pretension of making a first meridian of its own, consequently whilst geographical readers have a fair conception of latitude, that of longitude is especially hazy. I only hope we shall not lose sight of the desideratum in the Geographical Congress of Paris (1875).

⁴ "A Discourse concerning the Thule of the Ancients," by Sir Robert Sibbald, vol. iii., Gough's Camden (Britannia, etc.) of 1787. See also Gibson's edition of Camden, Lond. 1695, and Frankfort edition, 1602.

Again (Sylv., iv. 4, 62):

“ — aut nigre littora Thule.”

And again (Sylv., v. 1, 90, 91):

“ — quantum ultimus orbis,
Cesserit et refluxo circumsona gurgite Thule.”

Strabo (book ii., chap. 4, § 8) is quoted to show by Pytheas, that Thule is “one of those islands that are called British,” and we have seen Strabo’s own opinion that it lies farther south than where the Massilian placed it. He quotes Catullus (B.C. 87; Ad Furium Carm., xii.):

“Sive trans altas gradietur Alpes,
Cæsaris visens monumenta magni,
Gallicum Rhenum, horribilesque ultim-
osque Britannos;”

and Horace (i. 35, 30):

“Serves iturum Cæsarem in ultimos
Orbis Britannos;”

to show that the Britons were the northernmost people then known. Due use is made of Silius Italicus (nat. circ. A.D. 25; Punic, lib. xvii., 417, 418):

“Cœrnulus haud alitur cum dimicat incola Thule,
Agmina falcifero circumvenit arcta covino,”

for it appears from Cæsar’s Commentaries, that the bluish colour and the fighting out of hooked chariots were in use among the inhabitants of Britain. Pliny also (N. H., iv. 30) treats of Thule in the same chapter where he treats of the British Isles, “ultima omnium quæ memoratum est Thule.” Tacitus says (Agric. Vita, cap. x.) when the Roman navy sailed about Britain, “dispecta est et Thule.”¹

¹ The full passage of Tacitus is, “Hanc oram novissimi maris (the Deucalidonian Sea) tunc primum Romana classis circumvecta, insulam esse Britanniam affirmavit, ac simul incognitas ad id tempus insulas, quas Orcades vocant, invenit domuitque. Dispecta est et Thule” (alii “Thyle” and “Tyle”) “quadam trans: nix et hiems appetebat; sed mare pigrum et grave remigantibus: perhibent, ne ventis quidem perinde attolli; credo quod rariores terræ montesque, causa ac materia tempestatum et profunda moles continui maris tardius impellitur.” Plutarch tells us (Life of Cæsar) that the very existence of such a place as Britain had been doubted. When Diodorus Siculus wrote (temp. J. Cæsar and Augustus), the British Isles were amongst the regions least known to the world: “Ἡκίστα πέπτωκεν ὑπὸ τῆν κορηζιδανθράπων ἐπιγνοσιν” (lib. iii.). Eusebius (nat. circ. A.D. 264) tells us in his Chronicon, “Claudius de Britannis triumphavit, et Orcades insulas

Ireland, properly so called, was the first of the British Isles which got the name Thule, being the first that the Carthaginians met with as they steered their course from Cadiz to the west; and hence it is that Statius (*Ad Claud. Uxor.*, lib. iii, v. 20) calls Thule 'Hesperia,' and it seems to be the same that is said by (the pseudo) Aristotle (*Liber de Mirab. Auscult.*) to have been discovered by the Carthaginians when he speaks thus (lxxxv.):

"In the sea beyond the Pillars of Hercules, they say, the Carthaginians found a fertile island uninhabited, abounding in wood and navigable rivers, and stored with very great plenty of fruits (*fructibus*) of all sorts,¹ distant several days' voyage from the continent."

And Bochartus (*Geog. Sac.*) confirms this by what he observes, that an ancient author, Antonius Diogenes,² who wrote twenty-four books of the strange things (or Incredibilities) related of Thule,³ not long after the time of Alexander the Great, had his history from the Ciparis Tables, dug at Tyre out of the tombs of Mantinea and Dercilis (*Dercyllides*), who had gone from Tyre to Thule, and had stayed some time there. But though this be the first Thule discovered by the Carthaginians, yet it is not that mentioned by the Roman writers, for they speak of the Thule which the Romans were in and made a conquest of, but it is certain they were never in Iceland properly so called.

Romano adject imperio' Orosius (circ. A.D. 415) adds (vii. 6, *Hist. Adver. Pag.*, libri vii.), "Cognitæ insulæ erant forte et ante Claudium et sub Claudio, non quidem armis Romanis, sed mercatoribus, aut etiam eruditis, Mela teste." And Mela, who wrote in the days of Claudius, assures us (iii. 6), "Triginta sunt Orcades angustis inter se diductæ spatiis."

¹ The mention of fruits in this passage banishes the idea of Iceland.

² Diogenes of Apollonia flourished in the fifth century B.C., and also wrote *περὶ φύσεως*—concerning nature—a treatise on physical science. In the days when Hanno the Carthaginian, passing the Mediterranean Straits, explored the western coast of Africa, an event usually placed in the fifth century B.C., although Gosselin (*Recherches sur la Géographie des Anciens*) goes back as far as the tenth, Himilco (*Pliny, N. H.*, ii. 67) was also sent to explore the remote parts of Europe. Sailing along the shores of Gadir, Tartessus (Tarshish), and Gallicia, he reached the Tin Isles. His *Periplus*, originally deposited in a temple at Carthage, was used by Dionysius, and was versified by Rufus Festus Avienus in the fourth century, in his iambic poem "De Oris Maritimis." He himself says:

"Hæc nos ab imis Punicorum annalibus,
Prolata longo tempore edidimus tibi."

And Dodwell justly observes (*Dissert. de Peripli Hannonis Ætati*): "Ea causa satis verisimilis esse potuit, cur tandiu Græcos latuerit Himilco, etiam eos qui collegæ meminerint Hannonis."

³ *Τὰ ἄνωρ Θεόλης ἀνωτα*. An abridgment is preserved by the learned Patriarch Photius in his *Myriobiblion seu Bibliotheca*.

“That they were in Thule appears from Statius (*Sylv.*, v. 2, 54):

“ ‘ — quantusque nigrantem
Fluctibus occiduis fessoque Hyperione Thulen
Intrârit mandata gerens.’

Now the father of Crispinus, to whom he writes, was Vectius Bolanus, governor of Britain, A.D. 69, under Vitellius (as Tacitus informs us), which is clearly proved by the same poet (*Sylv.*, v. 2, 140-143):

“ ‘ Quod si te magno tellus frenata parenti
Accipiat—
Quanta Caledonios attollet gloria campos!
Cum tibi longævus referet trucidis incola terræ;
Hic suetus dare jura parens.’

The words ‘Caledonios’ and ‘trucidis incola terræ’ clearly show that by Thule is meant the north part of Britain, which was then possessed by the Picts, designed by the name ‘Caledonios,’ and by the Scots, designed as ‘trucidis incola terræ,’ the same epithet that Claudian (*De Bell. Get.*, 416) gives to the Scots in these verses:

“ ‘ Venit et extremis legio prætenta Britannis,
Quæ Scoto dat fræna truci, ferroque notatas
Perlegit exsangues Picto moriente figuras.’

And of this north part of Britain that verse of Juvenal (*Sat.*, xv. 112):

“ ‘ De conducendo loquitur jam rhetore Thule,’¹

is also to be understood. Of this the best exposition is taken from Tacitus (*Agric.*, xxi.):

“ ‘ Jam verò principum filios, liberalibus artibus erudire, et ingenia Britannorum studiis Gallorum anteferre, ut qui modò linguam Romanum abnuebant, eloquentiam concupiscerent.’

“Claudian (*De III. Consul. Honor.*, 52-56) yet more particularly gives the name of Thule to the north part of Britain:

“ ‘ Facta tui numerabat avi, quem littus adustæ
Horrescit Libyæ, ratibusque impervia Thule.
Ille leves Mauros, nec falso nomine Pictos
Edomuit, Scotumque vago mucrone secutus,
Fregit Hyperboreas remis audacibus undas.’

¹ Juvenal here ironically describes the progress of Greek and Roman letters towards the barbarous north. The Britons are learning eloquence from the Gauls, and even Thule thinks of hiring a rhetorician.

And in these lines (De IV. Consul. Honor., 26-33) :

“ ‘ Ille, Caledoniis posuit qui castra pruinis,
 Qui medios Libyæ sub casside pertulit æstus,
 Terribilis Mauro, debellatorque Britanni
 Littoris, ac pariter Boreæ vastator et Austri.
 Quid rigor æternus cœli, quid sidera prosunt ?
 Ignotumque fretum ? Maduerunt Saxone fuso,
 Orcades : incaluit Pictorum sanguine Thule :
 Scotorum cumulos flevit glacialis Ierne, ’

where, by placing the Moors and Britons as the remotest people then known, and mentioning the Scots and Picts as the inhabitants of Thule and Ierne, he demonstrates clearly that Thule is the north part of the isle of Britain, inhabited by the Scots and Picts. For this Ierne, or, as some read it, ‘Hyberne,’ can no way be understood of Ireland properly so called; first, because Ireland can never deserve the epithet ‘glacialis,’¹ since, by the testimony of the Irish writers, the snow and ice continue not any time there; secondly, the Romans were never in Ireland, whereas, according to the above-mentioned verses, Theodosius passed over the Friths of Forth and Clyde, called by him ‘Hyperboreæ undæ,’ and entered Strathearn, which to this day bears the name Ierne; in which Roman medals are found, and the Roman camps and military ways are to be seen—the undoubted testimonies of their being there; and therefore is so to be understood in the same poet’s lines upon Stilicho (see De Laud. Stilich., lib. ii., 250-254), who was employed in the British war :

“ ‘ Me quoque vicinis pereuntem gentibus, inquit,
 Me juvat Stilicho, totam cum Scotus Iernen
 Movit, et infesto spumavit remige Tethys.
 Illius effectum curis, ne tela timerem
 Scotica, ne Pictum tremere.’

Now, Tethys in these verses, and the ‘undæ Hyperboreæ’ in the verses before mentioned, cannot be understood of the sea between Scotland and Ireland, for Ireland lies to the south of the Roman province, and the situation of the Scots’ and Picts’

¹ For “glacialis,” see Adrian Junius before quoted. The high-sounding and convenient epithet seems to have been applied to Ierne, as “ultima” to Thule. If the Romans did not hold Ireland, at any rate they knew it well: “Melius aditus portusque, per commercia et negotiatores cognita” (Tacit. Agric., xxiv.).

country is to the north of it; for it was separated by the two Friths of Forth and Clyde from the Roman province, which clearly shows it was to be understood of them: the same thing that is also imported by the words 'Hyperboreas undas' and 'remis;' for these cannot be understood of the Irish Sea, which is to the south of the Roman province, and is very tempestuous, and cannot so well be passed by oars as the Friths of Forth and Clyde. And the same poet has put this beyond all doubt (in the verses before quoted, *De Bell. Get.*, 416).

"For were it to be understood of the Irish Sea, then the wall and the 'prætenturæ' (*legio prætenta*) should have been placed upon the Scottish shore that was over against that country, which is called Strathearn now, and is the true Ierne not only mentioned by Claudian, but also by Juvenal in these verses (*I. Sat.*, ii. 160):

" ' Arma quidem ultra
Litora Juvernæ promovimus, et modò captas
Orcadas, ac minimâ contentos nocte Britannos. '

"That this Thule was a part of Britain, the Roman writers seem to be very clear, especially Silius Italicus in the verses before quoted.

"But to make it appear which part of Britain the Thule was which is mentioned by the Romans, it will be fit to see to which part of Britain the epithets attributed by writers to Thule do best agree. First, then, it was a remote part, 'ultima Thule,' as if this were the remotest part of Britain; so Tacitus (*Agric.*, xxx.) brings in Galgacus expressing it, 'We, the uttermost bounds of land and liberty,' etc. Then Thule was towards the north, and so was this country with respect to the Roman province; and, thirdly, it might deserve the name Thule (darkness), because of its obscure and dark aspect, it being in those days all overgrown with woods. Fourthly, the length of the day annexed to Thule; and, upon this account, it must be the country to the north and to the east of Ierne, by the verses of Juvenal before mentioned (*V. Sat.*, xv. 112).

"Another property of Thule given by Tacitus (*loc. cit.*) is that about it is 'mare pigrum et grave remigantibus,' which agrees indeed to the sea upon the north-east part of Scotland, but not

for the reason that Tacitus gives, *i.e.*, for want of winds, but because of the contrary tides which drive several ways, and stop not only boats with oars, but ships under sail.

"But Thule is most expressly described to be this very same country that we treat of by Conradus Celtæ :

" ' Orcadibus quæ cincta suis Tyle et glacialis
Insula.'

"This same epithet Claudian (see p. 15) gives to Ierne, when he calls it 'Glacialis Ierne;' and this Thule he makes to be encompassed 'suis Orcadibus,' which isles lie over-against it; and a little after he gives it the like epithet with 'mare pigrum.'

" ' Et jam sub septem spectant vaga rostra Triones
Quæ Tyle est rigidis insula cincta vadis.'

And afterwards he makes the Orcades to lie over-against this Thule, and seems to have in his eye the skerries and weels in Pictland (Pentland?) Frith in these lines :

" ' Est locus Arctoo quæ se Germania tractu
Claudit, et in rigidis Tyle ubi surgit aquis,
Quam juxta infames scopuli et petrosa vorago
Asperat undisonis saxa pudenda vadis
Orcadas has memorant dictas a nomine Græco.'¹

"But the clearest testimony of all we owe to Arngrimus Jonas (Specimen Islandicum, A.D. 1593),² when he brings in the verses of Fortunatus (lib. viii., cap. 1), who sings of St Hilarion (ob. A.D. 372) :

" ' Eloquii currente rotâ penetravit ad Indos,
Ingeniumque potens ultima Thule colit.'

¹ In Icelandic "Orkn" and "Orkn-selr" are applied to a seal. (Compare Lat. *orca*, supposed to be the grampus: Cleasby.) Pliny makes *orca* a kind of dolphin (*D. orca*), and *orec* or *orc* is the Gaelic form; hence Cape Orcas, which is popularly identified with Dunnet Head, the extreme northern point of Scotland. We have no need to derive "Orkneys" from *εἰρκω* (*coercio*), these isles breaking and restraining the force of the raging waves; or from "Erick" or "Orkenwald," or any other "Pictish prince famous there at its first plantation."

² The *Crymogæa* (Sive De Reb. Isl., Hamb. 1593) of this learned Icelander will be found analysed in Purchas, vol. iii., and Hakluyt, vol. i. His principal argument is very unsatisfactory: "If Iceland is taken to have been the classical Thule, it must have been inhabited in the days of Augustus, which is contrary to the chronicles of the island." This author's chief objection is thus stated by himself: "Si etenim Islandia idem esset cum Thule, rueret totum hujus narrationis fundamentum de Islandia A.C. 874 habitari primum capta;" an objection which will be considered elsewhere. Meanwhile I prefer the opinion of the equally learned Pontanus, who says of Iceland: "Non heri aut hodie quod dicitur fuit frequentata, sed habuit indigenas suos multa ante secula."

“And then reckoning up the several nations enlightened by him, he mentions Britain amongst the rest :

“ ‘ Thrax, Italus, Scytha, Persa, Indus,
Geta, Dacia, Britannus.’¹

“To which he adds, ‘From whence it may fairly enough be inferred that either Britain or (as Pliny will have it) some island of Britain was the *ultima Thule*.’ And afterwards, ‘To confirm the opinion of Pliny and his followers, who will have some of the British Isles, or particularly, that farthest in the Scottish dominions to be Thule, I must acknowledge that the history of the kings of Norway says the same thing, in the life of King Magnus, who, in an expedition to the Orcades and Hebrides and into Scotland and Britain, touched also at the Island of Thule and subdued it.’

“By all this, I think, it appears sufficiently that the north-east part of Scotland, which Severus the emperor and Theodosius the Great infested with their armies, and in which, as Boethius² shows us, Roman medals were found, is undoubtedly the Thule mentioned by the Roman writers; and this also, if we believe the learned Arngrimus Jonas, was meant by Ptolemy, where he saith, that, to the twenty-first parallel drawn through Thule by Ptolemy, the latitude answers to 55° 36’, so that our country in those ancient times passed under the name of Thule and Hibernia, and the ‘Hiberni et Picti, incolæ Thules’ are the same people who were afterwards called Scots.³

“I shall only add one remark more, and that is, that we need not have recourse for the rise of the name Scot, to the fabulous

¹ According to Dr Charnock, he speaks only of the Sacæ, the Persa, and the Britannus.

² Dr Bosworth (Anglo-Saxon Dict.) quotes Boethius (29, 11): “Oth thæt iland the we hatath Thyle, thæt is on tham northwest ende thisses middaneardes thær ne biþ nawther ne on sumera niht, ne on wintra dæg” (To the island which we call Thule, that is on the north-west end of this middle earth, where there is neither night in summer nor day in winter). Cardale (1, 166) also: “Thonne be norðan Ibernian is thæt ylemede land thæt man hæþ Thila” (Thence to the north of Ibernian is that island which men call Thila). See also Orosius, 1, 2.

³ The author here settles offhand a point disputed *ad infinitum*. Dr Charnock has shown that Scotland was at one time called Igbernia, Hibernia (the classical name of Ireland, corrupted from *iar-in*, the western isle), and from the end of the third to the beginning of the eleventh century, *Scotia* was used exclusively to indicate Ireland.

account of the monks who bring it from Scota, Pharaoh's daughter, married to Gathelus; since without that strain, if it be granted that the country was once called Thule, which in the Phœnician language signifies 'darkness,' we have a very fair reason for the name Scotia, which signifies the same in the Greek tongue. And it is very well known that it was usual with the Greeks (who next to the Phœnicians were the best navigators) not only to retain the Phœnician name of the place, but likewise to give one in their own language of the same import; and since the learned Bochartus has very ingeniously deduced the Greek name of the whole island, Βρατανικῆ, from Bratanack and Barat anac,¹ in the Phœnician tongue signifying 'a land of tin' (which the Greeks not only reduced to their own termination, but likewise called the British isles² Κασσιτερίδες, that is, 'lands of tin,'³ which is the signification of the Phœni-

¹ برة التنك (*Barrat el Tanak*), "tanak" being the Arabic for tin.—Dr Charnock in his various writings (*Local Etymology*, etc.), after referring to the derivation of Britannia from the Punic בריט אנוכ, *barat-anac*, the land of tin or lead; and the Hebrew ברא, *bara*, in Pihel, to create, produce; quoting Camden, Owen, Clarke, Borlase, Bochart, Boerhave, Shaw, Bosworth, and Armstrong, gives the following suggested derivations of the name from the Keltic, viz.: from its inhabitants, the *Brython*; from *brit*, *brith*, of divers colours, spotted (ברית, *brd*, pl. בריים, *brdim*, spots, spotted with colours); *brath-tuinn*, (the land on) the top of the wave; from *Yuys Prydain*, the fair island; from *Prydyn*, son of Aez the Great; from *bri*, dignity, honour; from *Brutus*, a fabulous king of Britain; from *brat*, high, *tain*, a river; but Dr Charnock inclines to derive the name from *brat-ina*, the high island. It need hardly be said that the Tin Islands (*Cassiterides*) contained no tin; like Zanzibar, they were probably a mere depôt where the Phœnicians met the savages of the interior.

² In the following verse of Catullus (*Carm.* 27):

"Hunc Gallæ timent, hunc timent Britannia,"

we find "Britain" used to denote the whole of the British Isles.

³ *Kassiterides* is Aryan not Semitic; the metal in Sanskrit being *Kastira*, which, like the Arabic *Khasdir*, may be from the Greek. The Scilly islands were also called *Æstrumnides*, a name which occurs in R. Festus Avienus (*loc. cit.*):

"Ast hinc duobus in sacram, sic insulam
Dixere prisci, solibus cursus rati est.
Hæc inter undas multum cespitem jacit,
Eam que latè gens Hibernorum colit.
Propinqua rursus insula Albionum patet.
Tartesisque in terminos Æstrumnidum
Negociandi mos erat Carthaginis
Etiam colonis, et vulgus inter Herculis
Agitans columnas hæc adibant æquora."

All this, be it remembered, is borrowed from Punic sources. Therefore Hibernia is explained by Bochart as "nihil aliud quam ultima habitatio," and Keltic Ierne is translated the "utmost point."

cian and Greek names); we may take the same liberty to derive the Greek name Scotia from Phœnician Thule;¹ but this is so fully treated of in the 'Scotia Antiqua,' that I need say no more."

To these authorities may be added Silius Italicus (lib. iii., 597), who manifestly places "unknown Thule" about Scotland:


"Hinc pater ignotam donabit vincere Thulen
Inque Caledonios primus trahit agmina lucos."

R. Festus Avienus (Descr. Orb. Ter.), metaphrasing Dionysius, treats of Thule when speaking of Britain, and yet gives "the unknown island" an Arctic day:

"Longa dehinc celeri si quis rate marmora currat,
Inveniet vasto surgentem gurgite Thulen;
Hinc cum plaustra poli tangit Phœbeius ignis
Nocte sub inlustri rota solis fomite flagrat
Continuo clarumque diem nox œacula ducit."

We have also the testimony of Richard of Cirencester (Ricardus Coronensis, ob. circ. A.D. 1401), who tells us (De Situ Britanniae) that in the time of the later emperors, "Thule" was applied to Valentia or Valentiana, the district between the wall of Severus and the rampart of Antoninus, including the south part of Scotland, Northumberland, and a portion of Cumberland.

It might have been supposed that the distinct mention of the Orcades and Hebrides² by Pliny (N. H., lib. iv., cap. 30), and by Ptolemy (lib. ii., cap. 3, § 32, = p. 28), would have barred their claim to the classic title. This is far from being the case. John Brand (A Brief Description of Orkney, etc., Edin. 1701, Pinkerton, iii., p. 782), after quoting Claudian and Conradus

¹ The Greeks were in the habit of borrowing their geographical terms from the indigenæ, not from the Phœnicians. Yet Dodwell is hardly justified in rejecting Hanno's Periplus because Greek names occur instead of Phœnician. I have already derived their Erythræan Sea from the Sea of Edom, and the Sea of Hymyar (of which the root is , redness); and the "Mountains of the Moon" from Unyamwezi, still shortened on the coast to Mwezi, the general name for the moon in the great south African family of languages. Dr Charnock (Local Etymology) says, "Scotland is the land of the Scoti, who by some have been considered as identical with the Σκυθαι, Scythæ, who may have been named from their great skill in the use of the bow, their principal weapon," and he gives O. Teut. *scutten*, *scuthen*, archers; Gael. *sciot*, an arrow, dart.

² Surely there is no reason why Macpherson should derive Hebrides from Ey-brides, islands of St Bride or Brigida, the Vesta of the North.

Celtes, with others who call Thule "*Britannicarum insularum septentrionissimam*," thus disposes of Iceland :

"I greatly doubt if ever the Romans had the knowledge of Iceland, their eagles never having come and been displayed to the north of Scotland or Orkney. '*Imperii fuerat Romani Scotia limes*,' saith the great Scaliger. Ptolemy will have it to be among the Isles of Zetland; and Boethius, our historian (Boethius, in p. 740, also in p. 755, which quotes from his life of Mainus, king of Scots), distinguisheth between a first and a second Thule, calling *Ila* the first, and *Louisa* the second, which are reckoned among the isles called Hebrides. '*Ptolemæus inter Schethlandicas insulas, quæ ultra Orchades sunt, aut proxime Norwegiam sitam vult, haud quaquam propter immensam intercapedinem intelligi potest, nos autem Ilam (Islay?) primam Lewisam (Lewis) Hebridum præstantissimam secundam Thulen vocamus.*' But I am inclined to think that although some might design a particular place by the Thule, yet generally by a synecdoche, usual with the Roman authors, they might denote all those places remote from them to the north, and especially Britain and the northern parts thereof, whither their arms did come."

The Shetland claimants take another line of argument. Eutropius (A.D. 330-375, lib. vii.) makes the emperor Claudius, during his invasion of Britain (A.D. 43) annex the Orkneys: "*Quasdam insulas etiam ultra Britanniam, in oceano positas, Romano imperio addidit, quæ appellantur Orcades.*" Pliny, they say, endorses Pytheas Massiliensis, who writes that Thule is six days' sail north of Britain. Tacitus (loc. cit.) declares that Agricola sailed round Britain, conquered the Orcades, and saw Thule. The latter cannot be the Orcades or Hebrides, because both are mentioned by Pliny, and as their northerly point is not so far north as Cape Wrath, they could hardly be described as "*ultra Britanniam.*" Caithness and other parts of Scotland are put out of court, since they are all to the south of Orkney, and therefore not beyond it. The Færoes and Iceland are excluded, because they were both too distant to be visited by the frail galleys of the Romans, unaided as they were, either by the compass or the science of navigation, and they could not possibly have been seen from Orkney. The same arguments apply to the Norwegian coast, which also is not an island, and is not situated north of Britain.

By this "process of elimination," we are compelled to conclude that Shetland, and only Shetland, justifies the descriptions and allusions to the "*Ultima Thule*" contained in the Latin classics.

It consists of islands which, viewed from afar, might be mistaken for one. It lies north of the Orkneys, from some parts of which Foula the Fair Isle, or the bluff of Fitfulhead, can be seen in clear weather. A passage of six days would be a fair average in the primitive barks of the Romans, who were never much distinguished for seamanship. The more positive proofs are the Roman coins found in the country, according to Dr Hibbert (*Description of the Shetland Islands*, Edin. 1822), and the ruins of a fortification in the island of Fetlar, which the same authority declares to be a Roman camp.

It need hardly be observed that all these arguments are insufficient, and that the utmost they prove is the determination by Agricola and his men, that the venerable Thule was part of the Shetlands. Probably they saw only the loom of land to the north, and identified it with the "period of earth." Possibly they might have been swayed by the verbal resemblance of Foula, which may be seen from the Orkneys: it is evidently Fogla or Fugla-ey, and the same desire to clear up a foggy point of geography, which made Abyssinian Bruce discover the sources of the Nile in the fountains of the Blue River, found Thule in "Fowl-isle."¹ The opinion, however, has found supporters. Gaspar Peucerus (*De Terræ Dimensione*) declares that the Ptolemeian Thule is to be recognised in the Shetlands, which he heard "the sailors call Thilensel" (Fugl-insel?). Cellarius (*Geog. Ant.*, ii. 4) discovers Thule in the island of Hjaltland (Shetland), or in the Færoe group, "quæ in eâdem fere latitudinem sunt." He is followed by Probus (*Com. on Virgil*, ii. 358), who makes Thule the farthest of the Orcades; by the philosopher Petrus Ramus (*de la Ramée*); by Johannes Myritius, who rather cleaves to the end of Britain; by the learned Vossius, who prefers the Hebrides or Orcades; by Buchner (*Ad Tacit. Agric.*, cap. 10); by Camden, by Gosselin, and others. Stephanus Byzantinus says: "Thule insula magna in oceano sub Hyperboreas partes, ubi æstivus dies ex viginti horis æqualibus constat, nox verò ex quatuor. Hyberna verò dies à contrario." This calculation would place Thule three degrees south of the Polar circle, and would better suit the Færoe

¹ Compare "Fulham" (*volucrum habitatio*), the home of fowls.

archipelago (N. lat. 61° 23' to 62° 26' 40"). Forcellini understands Cellarius also to refer to the Færoes; De Kerguelen Tremarec (Voyages) opines for Iceland.

IV.

THULE = SCANDIA.

It has been seen that Pliny (Nat. Hist., iv. 16) apparently separates Norway from Thule; moreover, that Ptolemy (ii. 3) confirmed by Agatharcides and Stephanus Byzantinus (lib. i., in *extremis*), whilst pointing to North Britain and to Scandia, or Scandinavia, in his time held to be an island,¹ and little known to the civilised world, adds details which rather belong to Iceland. On the other hand, it is evident that during the later Roman empire, Thule was applied to Scandinavia.

Procopius, the Byzantine historian (nat. circ. A.D. 500), leaves no doubt upon this point. He devotes to it a considerable space (lib. ii., *De Bello Gothico*, c. 15), and his account will be little abridged. After relating how a party of Heruli, when conquered by the Longobardi, passed through the lands of the Slavini, the Varni (Οὐάρνοι, al. Harmi), and the Dani (Δάνοι, al. Dacæ), till they reached the ocean, he makes them take ship and settle at Thule:

“The island is ten times larger than Britain, and far to the north.² The greater part of it is desert. The inhabited region contains thirteen great peoples, each governed by its own king. A curious phenomenon is reported from that

¹ Celsius, indeed, arguing from the universal consensus of the classical geographers, believes in the former insularity of Scandinavia; the secular upheaval of the coast, which in parts still continues, may account for its annexation to the continent. Thus Skáni and Skáneý (the *-ey* answering to the Latinised *-avia*), the modern term applied to Scania, the Scandinavia of Pliny and subsequent geographers, is still given only to the southernmost point of the great northern peninsula, the first district known to the Romans.

² M. Bruzen La Martinière (*Grand Dictionnaire Géographique et Critique*, fol., La Hage, 1738, and Venice, 1741) runs this sentence into the next, and makes the greater part of northern Thule barren. The text is the reading adopted by the splendid edition of Claudius Malvetus (*Greek and Latin, Venetiis, 1729*), and by the Latin translation, *Basilie ex officinâ Ioannis Hervagii (anno 1531, pp. 92-94, and not divided into chapters)*. As regards the Heruli, whom Procopius calls Ἐρούλοι, we find in Stephanus Byzantinus (fifth century) Ἐλούροι; in Sidorius Apollinaris (fifth century, *Carm. 7*):

“Cursu Herulus, Hunnus jaculis, Francusque natatu;”

and in Zonaras (twelfth century) Ἐρούλοι.

place: every year, about the summer solstice, the sun remains forty days above the horizon. Six months after this there is a night of forty days, a time of sorrow, when all intercourse and business are at an end. I (says Procopius) was greatly desirous of seeing this marvel for myself, but the opportunity was ever wanting. I therefore asked those who had been there how the sun rises and sets. They told me that for forty consecutive days, the sun lights the island; sometimes from the east, at other times from the west; but that when he returns to the same point where he appeared, a single day is counted. During the season of forty nights, time is measured by the moon. When thirty-five of these long and lasting nights have passed, some of the people ascend the highest mountains, and give warning to those below that after five days more they will see the sun. The Thulitæ rejoice over the good news, and celebrate in the dark a festival which in ceremony exceeds all their others. Although this happens every year, still it would appear the inhabitants apprehend a total desertion of the sun.

“Amongst the barbarian peoples of Thule, none are so savage as the Skithifini (Σκιθιφῖνοι, al. Scritifini). Like beasts,¹ they ignore clothes and shoes; they drink no wine, and they eat nothing which the earth grows. Both men and women, who will not take the trouble of cultivation, occupy themselves exclusively with hunting, and the forests and mountains supply them abundantly with game. They eat the flesh, and, being without flax and wool, they wear the skins, which they fasten with sinews, having no knowledge of sewing. Also, they do not bring up their offspring like other people. The children of the Thulitæ are fed upon the marrow of beasts, instead of being suckled by their mothers. When the woman has been delivered, she wraps her babe in a skin, secures it in another, places some brains in its mouth, and sets out with her man for the chase, in which both sexes equally excel. The Thulitæ adore several gods and demons, some of whom they believe to inhabit the sky, others the air; some are on the earth and in the sea, whilst others of the smaller kind, affect the rivers and springs. They often offer sacrifices and immolate all manner of victims, the most acceptable being the first man captured in war; he is sacrificed to Mars (Thor?), the most powerful of all their gods. On these occasions they do not simply slay the victim, they either hang him to a tree, or roll him over thorns, or put him to death in some other way, choosing the most cruel.

“Such are the customs of the *Thulitæ*, amongst whom are the Goths (Γαυροί), a fecund people that gave land to the Herulian immigrants. The remnants of this race who lived amongst the Romans, after slaying their king, sent their chief worthies to the island of Thule, for the purpose of finding if any of the royal blood there remained. The deputies were successful, and chose out of many one who pleased them the most. But as he died on the way, they returned (to Thule) and brought with them one Todasius (Τοδάσιος, al. Datis); this man was accom-

¹ La Martinière informs us that the Skithifini, Scritifini, or Scritifinni of Procopius were the Scritofinni of Paulus Diaconus (sixth century), and the Crefennæ or Scretofennæ of Jornandes (sixth century). This Scandinavian tribe, according to Hermanides (Descriptio Norwegiæ, p. 46), held the country afterwards called Scredevida or Scriticivinda, extending along the coasts of the Boreal Ocean from the confines of Finmark to the beginning of White Sea, and now included in Russian Lapland. The account of Procopius also tallies with those of the ancient Lapps.

panied by his brother named Aordus ("Αορδος) and by two hundred youths of the island."

This description of Thule is evidently great Scandinavia, not little Iceland. Hence Ortilius (Thesaurus sub voc.) D'Anville, who rejects Iceland; Farnaby, Schenning (Von Nordich. Land in Neue Allg. Welt-Gesch, vol. xiii., p. 14, et seq.); Rudbeck, who understands Sweden; Murray (loc. cit.); Wedel (Alhandlung über die "Alt-Scandinavische Gesch.," p. 32, et seq.); Schlözer (Allg. Nordisch. Gesch, pp. 14, 16), Parisot, and other geographers, have referred the descriptions of Procopius especially to the Norwegian canton still called "Tyle-mark," or "Tile-mark." Maltebrun (iii. 6) prefers Jutland, on the continent of Denmark, part of which, he hears, is still termed "Thy" or "Thy-land." Calstron believed that all Scandinavia was meant. Celtes (Scharidius, Basil ed., p. 59) makes Iceland "one of the isles of the ocean," together with Scandia, Dania, Suecia, etc. Adelung (Mithridates) supports the claims of Norway. Others go as far as Lapland, and even Greenland has not been without claimants to the honour. Yet in the sixth century, Jornandes (De Origine Actuque Getarum Liber, p. 393, Basle edition of 1531), after mentioning the thirty-four Orcades, says, "Habet et in ultimo plagæ occidentalis aliam insulam nomine Thyle, de quâ Mantuanus, Italia, 'tibi serviat ultima Thyle,'" and he carefully distinguishes it from the "ampla insula nomine Scanzia."¹

V.

THULE = ICELAND.

It has been shown that the accounts of Pytheas, supported by details from Pliny and Ptolemy, refer only to Iceland. They are confirmed by the following authorities. In Caius Julius Solinus (A.D. 230; 2 vols. fol., Traj. ad Rhenum, 1689), we find Thule five days' sail from Orkney, and we cannot allow less than 100 knots for the *δρόμος νυχθήμερος*, or a total of 500 direct geographical miles; the run from northern Orkney to the south

¹ "Scana," in Adam Bremensis; generally "Scandia," and popularly derived from "Schön" and "aue." According to Cleasby, the Icel. "Skáney" is said to mean "borderland," and perhaps derived from "skán," a thin border, surface, etc.

coast of Iceland being about this distance. The Polyhistor, held an oracle in the Middle Ages, adds (chap. xx., 111) :

“Inter multas quæ circa Britanniam sunt insulas, Thylen ultimam esse commemorat. In quâ æstivo solstitio dicit esse noctem nullam. Brumali verò perinde diem nullum.”¹

Orosius, whose history (London, 8vo, 1773) extends to A.D. 417, says :

“Tylen per infinitum à cæteris separatam undique terris in medio sitam oceano vix paucis notam haberi.”

Isidorus Hispalensis (A.D. 600-636; Orig. Seu Etym., xiv. 6; Opera Omnia, fol., Parisiis, 1601) appears to repeat Pliny :

“Thyle verò ultimam oceani insulam inter Septentrionem et occidentalem plagam,² ultra Britanniam sitam esse describit, à sole nomen habentem, quia in eâ æstivum solstitium sol faciat, et nullus ultra eam dies sit. Ultra Thylen verò pigrum et concretum mare.”

The last sentence of the bishop being emphatically true in winter. Other authorities who identify Thule with Iceland, are Cluverius (Germ. Ant., ii. 39), Harduin and Dalechamp (Ad Plin.), Bougainville (c. l., p. 152), Hill (Ad Dionys.), Penzel (Ad Strab.), Pontanus (Chorog. Dan. Descrip., p. 74), Isaac Thilo (Dissert., Lips., A.D. 1660), Gerhard Mercator, and Mannert (Geog., i., p. 78), to mention no others. Martin (Histoire des Gaules, i. 159) takes the Gauls to Iceland.

¹ The whole account of Solinus is interesting enough for detailed quotation : as regards Thyle being two days distant from Caledonia, and five from the Orkneys; the numerals are supposed to be clerical errors : “Multæ et aliæ Britanniam insulæ, e quibus Thyle ultima, in qua æstivo solstitio sole de Cancrî sidere faciente transitum nox pænè nulla : brumali solstitio dies adès conductus, ut ortus junctus sit occasui. A Caledoniæ promontorio Thylen petentibus bidui navigatione perfecta excipiunt Hebridæ insulæ, quinque numero, quarum incolæ nesciunt fruges, piscibus tantum et lacte vivunt. Rex unus est universis : nam quotquot sunt, omnes angusta interluvie dividuntur. Rex nihil suum habet, omnia universorum : ad æquitatem certis legibus stringitur ; ac ne avaritia divertat a vero, discit paupertate justitiam, utpote cui nihil sit rei familiaris : verum alitur e publico. Nulla illi datur femina propria, sed per vicissitudines, in quamcunque commotus fuerit, usurarium sumit. Unde ei nec votum, nec spes conceditur liberorum. Secundam a continenti stationem Orcades præbent : sed Orcades ab Hebudibus porro sunt septem dierum, totidemque noctium cursu, numero tres. Vacant homine ; non habent silvas, tantum junceis herbis inhorrescunt. Cetera earum undæ arenæ. Ab Orcadibus Thylen usque quinque dierum ac noctium navigatio est. Sed Thyle larga et diutina pomona copiosa est. Qui illic habitant, principio veris inter pecudes, pabulis vivunt, deinde lacte. In hiemem compascunt arborum fructus. Utuntur feminis vulgo ; certum matrimonium nulli. Ultra Thylen pigrum et concretum mare.”

² Both Ausonius (Idyl. 12) and Statius (loc. cit.) make Thule to be “Hesperia,” i.e., west of Britain. On the other hand, the Geographer of Ravenna (Pre Guido ? v. 31) places his Thule east of Britain.

In the ninth century we have positive evidence that Thule had returned to its oldest signification, Iceland. The monk Dicuilus, who wrote in the year 825,¹ relates that thirty years before that date (A.D. 795) he had seen and spoken with several religious who had inhabited the island of Thule between February and August. He asserts that Iceland and the Færoes had been discovered by his countrymen; and his calculation of the seasons and the days at different times of the year, together with the assertion that a day's sail thence towards the north would bring them to the Frozen Sea, shows that "Iceland, and Iceland alone, could have been the island visited by the anchorites."

The Domesday Book of the north, the "Landnámabók," whose lists of 1400 places and 3000 persons were drawn up by various authors in the twelfth century, supported, according to Mr Blackwell (note, p. 189), "by other ancient Icelandic documents," simply states (Prologus, p. 2), "Before Iceland was settled by the Northmen there were men there called by the Northmen Papæ. These men were Christians, and are thought to have come from the west, for there were found Irish books, bells (biöllur), staves (baglar), and various other things, whence it is thought that they were Westmen," Irishmen—a name still preserved in the Vestmannaeyjar archipelago. Moreover, we learn that these relics were found in Papey (the Isle of the Papæ), a rock off the eastern coast, which still bears the same name, and at Papyli, in the interior; and finally, that "the Christians left the country when the Northmen settled there"²—the latter being pragmatical pagans.

Mr Blackwell concludes that these people were probably fishermen from the north of Ireland and the Western Isles of Scotland, who may annually have frequented the northern seas, and made Papey one of their winter stations. Mr Dasent (i., vii.)

¹ Another authority was Ari Froði (Ara Multiscius), one of the writers of the Landnámabók, who also tells us (c. 2, p. 10, in Schedis de Islandiâ, Oxoniæ, 1716, 8vo) that these "hermits" chose not to live with the heathen, and for that reason went away, leaving behind their books, bells, and staves.

² M. Mallet's Northern Antiquities (Bohn, 1859), p. 189, note by the editor, Mr J. A. Blackwell. Mr G. W. Dasent (The Story of Burnt Njal, Edin., Edmonstone & Douglas, vi., viii.) quotes Dicuili Liber de Mensurâ Orbis Terræ, Ed. Valckenaer, Paris, 1807; and Maurer, Beiträge zur Rechtsgeschichte des germanischen Nordens, i. 35.

more justly identifies them with the Papar or Culdees (?), a class of churchmen who have left their traces in almost every one of the outlying islands of the west. Under the name of "Papar" we find them in the Orkneys and Shetlands, the Færoes and Iceland; "and to this day the term 'Papey' in all these localities denotes the fact that the same pious monks who had followed St Columba¹ to Iona, and who had filled the cells at Enhallow and Egilsha and Papa, in the Orkneys, were those who, according to the account of Dicuil, had sought Thule or Iceland that they might pray to God in peace."² These Culdees were

¹ Or Columbanus (nat. circ. A.D. 559); he was born about forty years later than St Columbkil.

²The word "Culdee" is used by Dasent. It was reserved for a sub-learned and ultra-disputatious Icelander, Mr Eirikr Magnússon, to assert at the Anthropological Institute (November 19, 1872), that Culdee is a "general term for men of religious and monastic living, and that the epithet is derived from 'Cultores Dei.' The singular is simply the Erse 'Ceile De,' or 'servant of God.'"

The following exhaustive note upon the Culdees was kindly forwarded to me by Dr Richard S. Charnock :

"The Culdees anciently had establishments not only in Scotland and Ireland, but also in England and Wales. They were numerous in Scotland, and continued there from the ninth century to the Reformation. Chalmers (Caledonia) says the Culdees of Scotland are not mentioned in history till about the beginning of the ninth century (circ. A.D. 800-815), and their first establishment was at Dunkeld, under the bishop of that see. They were afterwards (circ. A.D. 850) placed at St Andrews, where they had their chief establishment for many centuries; and it is stated by Buchanan that Constantine III., king of Scotland, who died in A.D. 943, spent the last five years of his life in religious retirement amongst the Culdees of that city. Chalmers states that before the introduction of the canons regular of St Andrews (twelfth century), the Culdees alone acted as secular canons in cathedrals, and as dean and chapter in the election of bishops; and that thenceforth both orders were joined in the right until A.D. 1272, when it was usurped by canons regular. He also says that the Culdees of Brechin continued for many ages to act as dean and chapter of that diocese, and according to Jamieson (History of the Culdees) the Culdees of St Andrews elected the bishop of that see down to the election of William Wishart (1270), when the power was abrogated; but in those early times it appears that the bishops in many sees in Scotland were of the order of Culdees. In G. Cambrensis mention is made of Culdees in the island of Bardsey, off the Welsh coast. The annotator of the Annals of the Four Masters (A.D. 1479) says, 'By the Latin writers they were called Colidsæi, Culdei, Kelidei, and sometimes Deicolæ.' The Colidei or Culdees are mentioned by various other ancient writers, and by several Scotch historians, as monks in Scotland as early as the fourth and fifth centuries. But the statements of John of Fordan, Hector Boethius, and others, are entirely contradicted by the learned Lanigan. Smith (Life of St Columbkil) and Jamieson (History) have maintained that they were Columbian monks, or members of that order instituted by St Columbkil at Iona, in the Hebrides, and also in various parts of Scotland; and they have represented these Culdees as a very strict and religious order in those early times, from the sixth to the twelfth century. But Lanigan shows that these statements are erroneous, and that the Culdees were not mentioned by the Venerable Bede or any other ancient ecclesiastical writer as Columbian monks, nor in the works of Usher or Ware, nor in the five lives of Columbkil published by Colgan. Lanigan considers that the Culdees were first instituted in Ireland in the eighth or ninth century; and Aongus, surnamed Ceile De, a celebrated ecclesiastical writer of the eighth century, author of Lives of Irish Saints, etc., is supposed to have been a Culdee. They are mentioned in the Annals of the Four Masters and of Ulster (A.D. 920), in which it is recorded that Godfrey, king of the

not likely to spread, as they carried no women, but they left traces of their occupation in their cells and church furniture.

The simple story told by Dicuil is eminently suggestive. Thus Thule became, probably for a second time, one of the "Britanniæ," the Isles of Britain; and we may consider the discovery a rediscovery, like the central African lakes, whence Ptolemy derived the Nile. When the rude barks of the eighth century could habitually ply between Ireland and Iceland, we cannot reject as unfit the Roman galleys, or even the Phœnico-Carthaginian fleets. The Periplus of Himilco was not more perilous than the Periplus of Hanno, and the Portuguese frequented the northern seas long before they had doubled Cape Horn. Berg-

Danes of Dublin, plundered Armagh, but he spared the churches and Colidæi. It appears from Lanigan and other authorities that the Culdees were not, strictly speaking, monks, neither were they members of the parochial clergy, but were a description of secular priests called 'secular canons,' and attached to cathedrals or collegiate churches termed prebendaries; and although bound by rules peculiar to themselves, they belonged to the secular clergy, and are to be distinguished from the canons regular, or communities of monks, who sprang up at a much later period, and officiated in the chapters of cathedral churches. The Culdees also sang in the choir, lived in community, and had a superior called 'Prior of the Culdees,' who acted as precentor or chief chanter. The principal institution of the Culdees was at Armagh, and, according to Usher and others, there were Culdees in all the chief churches of Ulster; and some of them continued at Armagh down to the middle of the seventeenth century. The Culdees had priories and lands in various parts of Ireland, particularly at Devenish Island, in Fermanagh, and at Clones, in Monaghan, both in the diocese of Clogher; also at Ardbraccan in Meath: and G. Cambrensis gives an account of the Colidæi who lived on an island in a lake in North Munster, which island was called by the Irish *Inis na mbeo*, or the 'Island of the Living' (or of cattle?), from a tradition that no person ever died on it; it was afterwards called *Mona Incha*, and was situated about three miles from Roscrea, in the bog of Monela, in Tipperary. In the time of G. Cambrensis this island was a celebrated place of pilgrimage; and their residence was afterwards removed to Corbally, a place near the lake, where the Culdees became canons regular of St Augustine. Though the Irish Culdees were generally clergymen, yet some pious unmarried laymen joined their communities. There were also Culdees in Britain, particularly in the North of England, in the city of York, where they had a great establishment called the Hospital of St Leonard, and were secular canons of St Peter's Cathedral, as mentioned in Dugdale's *Monasticon*; and got some grants of lands in A.D. 936, during the reign of Athelstan, and continued at York at least down to the time of Pope Adrian IV., who confirmed them in their possessions. We also read in the 'Annals,' under A.D. 1479, that Pearce, son of Nicholas O'Flanagan, who was a canon of the chapter of Clogher, a parson, and a prior of the Cille De, a sacristan of Devenish, and an official of Loch Erne (vicar-general of Clogher), a man distinguished for his benevolence, piety, great hospitality, and humanity, died after having gained the victory over the world and the devil. It would appear by the Annals of the Four Masters that Culdees were found in Ireland in A.D. 1601: 'O'Donnell having received intelligence that the English had come to that place (Boyle), was greatly grieved at the profanation of the monastery, and that the English should occupy and inhabit it in the place of the Mic Beathaidh (monks) and Culdees, whose rightful residence it was till then, and it was not becoming him not to go to relieve them if he possibly could.' At the Reformation, a little later, out of 563 monasteries in Ireland mentioned by Ware, and also in Archdale's *Monasticon*, it would appear that there was one belonging to the Culdees, viz., the Priory of Culdees at Armagh. See also Dr Jamieson's *History of the Culdees*, 4to, Edin.; Maccatheus's *History of the Culdees*, 12mo, Edin. 1855; and Keith's *Catalogue of Scottish Bishops*, new edition."

mann had evidently no right to determine that Iceland was not "Ultima Thule," *because*—(1.) The Romans were bad sailors; (2.) They were in the habit of writing "Rome—her mark" wherever they went, whereas no signs of their occupation are visible in Iceland; and (3.) Because Iceland was probably raised from the sea at the time when the Vesuvian eruption buried Herculaneum and Pompeii.

It is true that Roman remains have not yet been discovered in Iceland, but this is a negative proof which time may demolish; moreover, the same absence of traces characterises the Papar occupation which we know to have been a fact. On the other hand, Uno Von Troil speaks of a ruined castle near "Videdal" (Viðidalr), some 200 perches in circumference, and smaller features of the same kind on the glebe of Skeggestað, near Langanæs. Mr Henderson¹ declares of Hrutur's cave, or rather caves—a vast apartment 72 feet long by 24 broad and 12 high, within which is a small recess 15 feet by 9, apparently a sleeping place—that both "are said to have been cut by people in former times."

We are, then, justified in concluding that we need no longer question with Synesius, if such a place as Thule exists, or doubt with Giraldus Cambrensis, whether it has yet been discovered. We may follow A. W. Wilhelm (Germanien, etc., 1823), and believe with the Teatro Grande Ortaliano, "Islandia insula, veteribus Thyle dicta, miraculis si quæ alia clarissima." We may agree with Mannert that Iceland might have been discovered by Pytheas the Phocæan, and even by the Carthaginians. We may even support what appears to be rather an extreme opinion:

"Pytheam præterâ increpat Strabo ut mendacem, qui Hiberniam et Uxisamam (Ushant) ad occidentem ponit à Gallia, cum hæc omnia, ait, ad Septentrionem vergant. Itaque veteres geographi Hiberniæ situm definiunt meliùs quam scriptoris seculi aurei Augusti, Himilco et Phœnices meliùs quam Græci vel Romani" (Res. Script. Hib., prol. i., xii.).

Moreover, it appears certain that the old tradition of Thule, though different ages applied the word differently, was never

¹ Vol. i., chap. 8. This traveller did not visit the cave, but quotes from Sesson and Pállsson, p. 927.

completely lost; and that the Irish rediscovered the island before the eighth century, if not much earlier, when the official rediscovery dates from the ninth, and the earliest documents from the eleventh and twelfth.

The Venerable Bede (eighth century) speaks of Iceland under the name of Thyle, more than a hundred years before its official discovery by the Scandinavians; and Alfred (ninth century), in his translation of Orosius (p. 31), assures us that the utmost land to the north-west of Ireland was called Thila, and that it was known to few on account of its great distance. Yet even after the occupation of Iceland by the Northmen, we find in the literary world the same vagueness which prevailed in earlier ages. For instance, Isaac Tzetzes (twelfth century), in his notes on Lycophron, calls the fabled Fortunate Islands of the Greeks "the Isle of Souls, a British island between the west of Britain and Thule towards the east," which is impossible. But in the fifteenth century Petrarch has left us a valuable notice of the knowledge then familiar to men of letters (*De Situ Insulæ Thules*, epist. i, lib. iii, *De Rebus Fam.*, vol. i, pp. 136-141, ed. 1869, J. Fracassetti, Le Monnier. Florentia). In reply to his own "*Quæro quânam mundi parte Thule sit insula?*" he quotes Virgil, Seneca, Boethius, Solinus, Isidore, Orosius, Claudian, Pliny, and Mela. He could obtain no information from "*Riccardo, quondam Anglorum regis cancellario*"—Richard de Bury was probably too busy for such trifles. He learned something, however, from the "*Libellus de Mirabilibus Hiberniæ, à Giraldo (Cambrensi) quodam aulico Henrici secundi, regis Anglorum.*" And after quoting this "*scriptorum cohors*," he thus ends with "pointing a moral"—"*Lateat ad aquilonem Thyle, lateat ad austrum Nili caput, modò non lateat in medio consistens virtus,*" etc.¹

Icelandic Thule was advocated by Saxo Grammaticus; but his opinion was strongly opposed by his commentator (Johannis

¹ This interesting letter was brought to the author's notice by Dr Attilio Hortis, Director of the Bibliotheca Civica, Trieste. This young and ardent scholar has published for the centenary festival of Petrarch (June 1874), certain political documents hitherto unprinted; they prove Petrarch to have been, like almost all the great Italian poets, a far-seeing statesman in theory if not in practice.

Stephanii, Notæ Uberiores in Hist. Dan. Sax. Gram. Soræ, ed. 1644, fol.). The words of the latter's preface are—"Ex opinione magis vulgari, quam rei veritate *Thylenses* ubique nominat Saxo, qui Islandi rectius dicerentur;" but he relies chiefly upon the controvertible arguments of "Arngrimus Jonas." Iceland was opposed by Gaspar Peucerus (De Terræ Dim.), by Crantzius (Præfatio in Norvagam, borrowed from Nicolaus Synesius, epist. 148); by Abraham Ortelius (Theatrum Orbis and Thesaurum Geographicum), and by Philippus Cluverus (Germania Antiqua). The globe of Martin Behaim (A.D. 1430-1506) shows a certain knowledge of details: "In Iceland fair men are found who are Christians. The custom of its inhabitants is to sell dogs at a very high rate; while they willingly part with some of their children to merchants for nothing, that they may have sufficient to support the remainder. Item.—In Iceland are found men eighty years old who have never tasted bread. In this country no corn grows, and in lieu of bread dried fish is eaten. In Iceland it is the stock fish is taken which is brought to our country."

THULE (ETYMOLOGY OF).

Perhaps the origin of "Thule" is ground more debatable and debated than even its geographical position.

"Some," says Sibbald, "derive the name Thule from the Arabic word Tule (طول = Túl), which signifies 'afar off,' and, as it were with allusion to this, the poets usually call it 'Ultima Thule;' but I rather prefer the reason of the name given by the learned Bochartus,¹ who makes it to be Phœnician, and affirms that it signifies 'darkness' in that language. Thule (𐤕𐤗) in the Tyrian tongue was 'a shadow,' whence it is commonly used to signify 'darkness,' and the island Thule is as much as to say, an 'island of darkness;' which name how exactly it agrees to the island so called at the utmost point to the north is known to everybody."

Others find Thule in the Carthaginian 𐤕𐤗 = "obscurity;" the Hebrew has 𐤕𐤗, and the Arabic ظل = "obscuravit."

¹ Bochart (in Chanaan, i. 40), quoting Diogenes and Dercyllides of Tyre, whose tables, according to Photius (loc. cit.), were dug up by order of Alexander the Great, explains Thule to mean in Phœnician "tenebrarum insula." But this etymology reminds us of the Semitic origin applied to Britain.

After using or abusing the Semitic tongues, we come to Greek, which puts forth three principal claimants: *θόλος* = fuscus color, caligo; *τέλος*, a goal; and *τηλέ*, procul. Meanwhile Isidorus (Orig. Seu Etym., lib. xiv., 6) derives Thyle, as has been shown, from the sun and its solstice. In the twelfth century, Suidas (Lex. sub voc.) makes Thulis (*Θούλις*) a king who reigned over Egypt and the isles of the ocean, one of which was called after his name.

Etymologists presently applied themselves to the Gothic languages and their derivatives; and they did not reject geographical resemblances. Pontanus (loc. cit., i., p. 746) asserts that the islands about the Norwegian coast were generally called Thyle. Ortelius (Thesaur. and Theatr. Orbis, p. 103), relying upon Ptolemy's latitudes and longitudes, declares that "Thilir" was the term applied to the people of Norwegian "Tilemark;" the latter word is also written "Thulemarchia" (Johannes Gothus); "Thielemark," "Thylemark" and "Tellemarck" (Pontanus).¹ Not a few writers refer "Thule," as has been said, to "Thy" or "Thy-land," the extreme point of Jutland. The commentator on Saxo Grammaticus, before referred to, records a derivation of "Thule:"

"Quod vel instar *Tholi*, cujusdam orbis terrarum sit imposita, vel quod eo navigantes ad ploratum (tothülen Belgæ dicunt) proficiscerentur."

In p. 175 he becomes still more vague:

"Rectius itaque Velljus nostro, juxtâ ac M. Christiernus Petri, primus Saxonis interpres, reddidere Blend aff Telløe vel Blend aff Tyløe. Quænam verò iste sint insulæ, juxtâ scimus cum ignarissimis."²

Prætorius (De Orbi Goth., iii. 4, § 3) deduces "Thule" from the

¹ The Icel. is Thilir, men of Thela-mörk, mark of the Thilir, the Norwegian country now called Thilemarken.

² Dr Charnock remarks that "Thule" is the name of a river in Glamorgan-shire, of a place in Silesia, and a town in Westphalia; also that "Southern Thule" was a title given to a part of Sandwich Island, the southernmost region discovered by Captain Cook in January 1775. Lt. Wilford's Pandit invented a Pushkara Dwipa under the Arctic circle, corresponding with modern Iceland. Camden (Britannia) warns us, not unnecessarily, against confounding the "insula in ultimis et extremis Borealis Oceani secessibus longè sub Arctico Polo," with the Indian "Tylys" or "Tylos" (Bahrayn?), of which St Augustine (lib. xxi. 5, De Civit. Dei) says, "Tylen Indiæ insulam eo preferri cæteris terris, quod omnis arbor quæ in eâ gignitur nunquam nudatur tegmine foliorum," doubtless alluding to the palm. Strabo, we believe, does not mention "Tylos;" Pliny refers to it in three places (Nat. Hist., vi. 32, and xii. 21 and 22).

Gothic "Tiel," "Teule," or "Tuole" (= *τέλος*, finis), meaning a long distance, and denoting the remotest land; he doubts the existence of the place, with D'Anville (*Mem. de Paris*, vol. xxxvii, p. 439). Reinerus Reineccius (*Reinech, Historiæ tam Sacræ quam Profanæ Cognitio*, Frankf. et Lipsiæ, 1685, and *Méthodus Legendi*, etc., *Historiam tam Sacram quam Profanam*, Frankf. 1670) advocates the Saxon "Tell," meaning a limit—*limes septentrionis atque occidentis*. Dr Charnock compares the Saxon "Deel," a part or portion, and quotes Wachter (*Gloss. Germ.*), who gives amongst other meanings of "Teil" (*hod. Theil*), *pars, portio, segmentum*, and "teilen," *i.e.*, *dividere in partes*.

Torfæus (*Hist. Norwegiæ*, i. 5, p. 12) proposes a variety of derivations. Wilhelm Obermüller (*Wörterbuch*, etc., Williams and Norgate, Lond. 1872) would explain "Thule Procopiana," by Dal (a dale), or "Tulla," also written "Tolin" and "Tullin," a meadow or pasturage; and he remarks that Norwegian "Tellemark" or "Thilemark," is of the same descent. The Thracian Kelts had a kingdom of Tyle, which here probably signified "Dail," a fortress. When Pliny makes men sail from Nerigos to "Thule," the latter might have meant *Du-ile*, "the little island," or perhaps "the dark ('dubh,' cloudy and wintry) isle."

Even the orthography of "Thule" is disputed, and there are sundry variants—Thula, Thyle, Thile, Thila, Tyle, and Tila. The popular Greek form adopted by Strabo, Ptolemy, Agathemerus, Isidorus, Jornandes (*De Reb. Get.*, cap. 1, 1), Procopius (*De Bell. Goth.*, ii. 15) and Stephanus Byzantinus, is *Θούλη*, which in Romaic would be pronounced "Thúle;" the ethnic being *Θουλαῖος* (Thulæus), and *Θουλίτης* (*plur.* *Θουλίται*). The Latins (Mela, Pliny, Tacitus, Anonymus Ravennæ, Martianus, Solinus, etc.) seem to have preferred "Thule;" and Cluverius (*Germ. Ant.*, iii. 39) rejects all others as barbarous. The learned and humorous Salmasius (in *Solin.*, cap. xxii.) declares that "Thyle" ought never to be written, despite many good codices of Virgil, Pliny, Jornandes, Isidore, the Anon. Ravennæ, and others, which give Thyle and even Tyle, *Θύλη* and *Θυλίτης*; Æthicus (in *Cosmog.*, p. 730), borrowing from Orosius, has "Tilæ;" Boethius (xx. 11), "Tile" and "Dyle."

We here conclude the subject of Thule, "celebrata omnium litteris insula." To do it full justice, and especially to quote from the "cohort" of modern writers, would require a volume.

SECTION II.

PHYSICAL GEOGRAPHY OF ICELAND.

§ 1. GENESIS AND GEOLOGY.

"Iceland owns its existence wholly to submarine volcanic agency"—such is the statement generally made by travellers and accepted by readers. The genesis of this "Realm of Frost and Fire;" this "fragment of earth white with snow, black with lava, and yellow with brimstone;" this "strange trachytic island, resting on an ocean of fire in the lone North Sea," where the "primary powers of nature are ever at war with one another," is compared with the efforts, vastly magnified, which in 1811 threw up from the waters Azorean Sabrina to a height of 480 feet above sea-level. And many have assumed as its exemplar the three-coned Nyöe (Nýey) that rose during the Skaptár eruption (1783), some thirty miles south-west of Reykjanes, and sank into a subaqueous reef before the end of the same year.¹

This is true, but not the whole truth. The basis of Iceland was recognised by Baron Sartorius Von Waltershausen to be the Palagonite² which forms the foundation of volcanic tufas on Etna, the Azores, Tenerife, the Cape Verds, and other

¹ To which may be added, neglecting the "Automata" of classical and mediæval times (Pliny, i. 89; Ruspe, de Novis Insulis, etc.), Arons Island (1628); Sorea of the Moluccas (1693); the offsets of Santorin (1707); Stromæe (1783); Graham Island, near Sicily, which, in 1831, was thrown up to a height of 750 feet, and the three outliers of Santorin (1866). These little worlds enable us to study Earth in the art of parturition.

² From Palagonia in Sicily, where it was first described (1838) by that savant (see pp. 222-483, and 802, Dana's System of Mineralogy, Trübner, London, 1871). The specific gravity is 2.43, and the fracture mostly conchoidal. The distinguished chemist, Professor Bunsen (Sect. ix., § 1), who, succeeding in producing artificial Palagonite, gives it iron, either magnetic or peroxide, and "some alkali," a vague term: Dr W. Lauder Lindsay adds minor constituents, felspar,

Plutonic regions. It is known to the people as "Mó-berg," the *saxum terrestre-arenosum* of Eggert Olafsson, translated by the dictionaries Clay-soil, but generally used in contradistinction to Stuðlaberg,¹ hard stone, the basalts, basaltites, dolerites, and others of their kind. By the older travellers, as Henderson, it is termed sandstone, and *conglomérat-basaltique*, while not a few have confounded it with trachyte. In Iceland this mineral substance, rather than mineral, is a far more important feature than even in Sicily.

By virtue of its composite character and different colour, this hydrosilicate of alumina is a Proteus; massive and amorphous; crystalline, muddy, sandy, and ashy; friable, porous, and spongy like lava and pumice; granular, silicious, and arenaceous; heavy and compact like slaty clays; vitreous and semi-vitreous with the lustre of pitch-stone. It is as various in tint as in texture; usually ferruginous brown, dark brown or dun yellow; grey and slate-coloured; dark with hornblendic particles; pure white where it is converted into gypsum, clay marl, and limonite with the aspect of chalk, by exposure to the action of sulphurous acid; green tinged with olivine; garnetic-red; ochreous, the effect of iron; and at times showing a ferreous coat of pavoine lustre. Palagonite lava is often "of so deep a brick-red colour that it resembles an iron slag, were it not for its superior lightness."

Here, this Palagonite degrades to the yellow sand which contrasts so remarkably with the black Plutonian shore; there, in the lowlands it shows fissile strata horizontal like sand-

augite (hornblende), jasper, olivine, obsidian, hornstone, chalcedony, and zeolite. Professor Tyndall (Royal Institution, June 3, 1853) offers the following table:

Oxide of iron,	36.75	
Alumina,	25.50	
Lime,	20.25	
Magnesia,	11.39	(not found by Dr Murray Thomson).
Soda,	3.44	
Potash,	2.67	

100.00

In 1872, only a single and a very poor specimen of this highly interesting rock had found its way to the museum in Jermyn Street.

¹ From Stuðill, anything that steadies, a stud, prop, stay. A specific usage makes Stuðlar signify pentagonal basalt columns, and Stuðla-berg is a basaltic dyke (Cleasby). It is popularly opposed to Mó-berg, "a kind of tufa," properly Palagonite, from Mór, a moor or peat-fuel.

stone, and at times marly couches. It paves the soles of valleys and the floors of rivers; and it rises on the surface of the loftiest Heiðar (highland heaths), where earth is worn down to the very bone by rains, snows, and winds. Now it towers in huge cliffs and scaurs, irregular masses of rock overlying or underlying the traps; then it bulges into high belts of country, sierras and detached mountains, like Herðubreið and others which will afterwards be mentioned. Consolidated and in places crystallised by heat and high pressure, this produce of submarine volcanoes was elevated by the long continued action of quietly working forces, but it still displays its subaqueous origin. Firstly, it is a hydrate containing 17 to 25 per cent. of water; secondly, it is stratified as if formed of hardened ashes and modified lavas; and, thirdly, it contains broken mollusks¹ of marine types still existing, and the silicious skeletons of infusoria: a negative proof is that we never meet with it among volcanic tuffs subaërially deposited. In places it becomes an acute-angled breccia, enclosing basalts and lavas varying from the size of a pin's head to that of a man, or rounded conglomerates suggesting that the foreign matter was deposited in a shallow sea. The fresh appearance of the shells and the presence of infusoria also tend to prove that it was deposited in a heated, at least not in a gelid sea.

Professor Tyndall finds in Palagonite the first stage of the fumarole: "If a piece be heated with an excess of aqueous sulphuric acid, it dissolves in the cold to a fluid, coloured yellow-brown by the presence of peroxide of iron. On heating the fluid, the peroxide is converted into protoxide; a portion of its oxygen goes to the sulphurous acid, forming sulphuric acid, which combines with the basis of the rock and holds them in solution." But the resultant springs show no trace of oxide of

¹ About ninety species of mollusk shells and the hard parts of echinoderms and crustaceæ have been found in the Palagonite of Sicilian Aci Castello. Lime, for the use of the shell-builders, enters into the composition of such tuffs generally, and the percentage depends upon the percentage of shells. Silica is extracted from it by carbonic acid and sulphuretted hydrogen; and this mineral again depends upon the included quantity of infusorial skeletons. Professor Quekett, Dr Gulliver, and other authorities, have examined specimens of Icelandic Palagonite, in which they could not detect infusoria nor their skeletons, even after boiling in nitric acid.

iron which has been dissolved and has disappeared. "The very rock from which it was originally extracted, possesses the power of re-precipitating it, when by further contact with the rock, the solution which contains it has its excess of acid absorbed, and has thus become neutral. In this way, the aqueous sulphurous acid acts as carrier to the iron, taking up its burden here, and laying it down there; and this process of transference can be clearly traced to the rocks themselves."

Upon this Palagonite floor, the "Protogæa," or oldest formation, were laid immense tracts of sand and stratified ejections of "trap." According to Macculloch, "the word is a cloak for ignorance which saves the trouble of investigation." But it is still a general term for the older, lighter, less earthy and basic, and more crystalline forms than the basalts, containing intercalated pumice-tuffs deficient in shells, whilst the cavities abound in zeolites and amygdaloids.¹ Concerning the strike and dip of the trap-strata, which rise sheer from the sea, in grades and layers, steep, angular, and bare, and which outline the mural copings and stepped cones of the old coast and the jaws of the river-gorges, there are many conflicting opinions. Some hold that the strata all incline gradually and quaquaversally, more or less, towards the centre of the island; whilst others find that as a rule, they are horizontal. The expedition led by Prince Napoleon (1857) recognised convergence, and often a slope of 15° towards the grand foci of eruption that form the respective systems; for instance, the *inclinaison rayonnante* towards Snæfellsjökull. The author could lay down no rule, except that the steps, viewed in profile, especially from the gashes and torrent-beds, appear to recede rather than to project, to dip inland rather than seawards. The strata vary in number to a maximum of fifty; they are perpendicular courses separated by débris, and sometimes footed by déblai and humus, disposed at the natural angle—this regularity again suggests submarine deposition, and everywhere attracts the stranger's eye.

Professor Bunsen divides the rocks of Iceland, and probably those of most other volcanic systems, into two great groups: (1.)

¹ The word "trap" will be used in these pages to denote the lavas ejected by submarine volcanoes.

Normal Pyroccenic, the basalts and dolerites, whence silica is almost absent; and (2.) *Normal Trachytic*, abounding in that mineral. The basalts¹ are of two kinds, the true, rich in, and the basaltite, which notably wants, olivine. Both are either honey-combed with drusic cavities, or perfectly compact and fine-grained; the water-rolled pieces are soft, and smooth as marble. The basalts pass by almost imperceptible degrees into dolerites (green-stones) coloured by admixture of chlorite, and often containing iron pyrites. Of less importance as a geological feature, are the masses, veins, and crests of trachyte which pierce the Palagonites, the traps, and the basalts. The rock which is compared with the chain of the Puys (Auvergne), occurs, however, in an altered form at many places unsuspected by old travellers, and every explorer adds to its importance. From Reykjavik appear two gold-yellow and white-streaked peaks, associated with jasper and other forms of quartz. The Snæfellsjökull peninsula is also for the most part trachytic. The celebrated Baula (the cow), a cone rising 3000 feet high, contrasts the mechanic neatness of its whitey-grey pillars² with its red neighbour, Little Baula, and with the surrounding chaos of darkness; and heat-altered trachytes are found about Hekla and the Geysir. The green trachyte of Viðey, apparently tinted by chlorite, was found to contain silica, alumina, iron, and traces of magnesia. Daubeny, and a host of writers, assumed that a trachytic band, disposed upon a rectilinear fissure 200 kilometres long, bisects the island from south-west (Reykjanes) to north-east (Langanes), and represents the original Iceland, as the Longmynd and Stiper Stones are the nucleus of England. Moreover, the great centres of eruption, igneous and aqueous, were disposed upon this

¹ Until late years the general opinion was that all basalts are of igneous formation. The contrary has been supported by Mr H. P. Malet (*Geogr. Mag.*, August 1874), to mention no others: he finds in that of Rossberg and the "Rowley Rag" vegetable, animal, and earthy particles which, passed through the fire, would have vanished in vapour. The distinction, therefore, between basalt and basaltic lava becomes fundamental. Granite, again, is by the same writer taken from Hutton and returned to Werner. The author could not but observe, when travelling in the basaltic Haurán, in that Bashan which, according to some, gave a name to the mineral, that the dried mud split under the sun into lozenges and pentagonal flakes (*Unexplored Syria*, i. 215). Upon this subject more will be said in Chapter XIV.

² Forchhammer considered this trachyte an unknown variety of felspar, and called it Baulite.

diagonal, flanked by the earlier Plutonic masses. Lastly, the modern volcanic chimneys were all theoretically opened in the old and new trachytic domes. M. Robert (1835) especially sought and failed to find the "trachytic band," and, since Von Waltershausen's visit, it has been determined that the material is the Palagonite floor traversed by the Geysir and by most of the active volcanoes.

The peculiar contrasts of the island are thus noticed by an old writer: "The king of Denmark is still master of Iceland, which is supposed to be the *Ultima Thule* of the ancients. The surface, though it is covered with snow, nevertheless contains burning mountains, whence issue fire and flames, to which the Iceland poets compare the breasts of their mistresses. It has also smoking lakes, which turn everything thrown into them to stone, and many other wonders which render this island famous." Iceland, like Tenerife, owes its present general contour to subaërial volcanic action of the post-Tertiary period, the secular growth of the detached regions overlying the pockets and foci of eruption, as explained by Von Buch, together with the gradual accretion, the gift of exit-chimneys and dejections from the Plutonic cauldrons. The normal pyroxenic was followed by the felspathic formations, trachytic, acid and pumiceous, which, though comparatively modern, still date from immense antiquity. The distribution into fire-vents (true volcanoes) and sand-vents (pseudo-volcanoes), will be noticed in a future page.

The lava is composed of trachytic (silicious) and doleritic (basic) ejections, varying in weight;¹ the stone averages about half the specific gravity of granite, and in a molten state it flows at the rate of 50 to 100 yards per diem. When first cooled, the ejections are lamp-black; they are then tarnished by oxygen to brown; they become grey with lichens; and finally, the lapse of ages converts them into humus. To the latter process, Brydone, on Etna, assigned 14,000 years, and greatly scandalised our grandsires, who held sound opinions upon the date (B.C. 4004) empirically assigned to creation. We can hardly forget poor Cowper's poor verse, and poorer sense:

¹ See Chapter XI.

"Some drill and bore
The solid earth, and from the strata there,
Extract a register, by which we learn
That He who made it, and revealed (!) its date
To Moses, was mistaken in its age."¹

The following is a list of the principal orographic features, Jökull,² Fells (mountains), volcanoes, masses of Palagonite, snow-peaks, and true glaciers, which are rare. Gunnlaugsson's astronomical positions are given in Danish feet, and the former are reduced to the meridian of Greenwich by assuming Copenhagen to lie east 12° 34' (Rafn, 12° 34'.7). The Danish foot is calculated at 12.356 inches English, or about 67:69.

The north-eastern quarter numbers fifteen points, ranging from 1000 to 3000 Danish feet, and the following ten exceed the latter:

	Dan. feet=Eng. feet.	N. lat.	W. long. (C.) = Greenwich.
Lambafell,	3459 3562	64° 58' 28"	26° 39' 19" 14° 5'
Herðubreið,	5290 5447	65° 10' 39"	28° 58' 55" 16° 25'
Gagnheiðarhnúkr,	3009 3098	65° 13' 35"	26° 53' 42" 14° 20'
Beinageitarfjall,	3517 3621	65° 27' 37"	26° 42' 2" 14° 8'
Dyrfjöll,	3606 3713	65° 31' 20"	26° 35' 17" 14° 1'
Smjörfjall,	3859 3973	65° 36' 40"	27° 24' 6" 14° 50'
Heljarfjall,	3991 4109	65° 48' 26"	31° 31' 56" 18° 58'
Rimar,	4020 4139	65° 52' 45"	31° 7' 33" 18° 33'
Ólafsfjarðarfjall,	3272 3369	65° 58' 34"	31° 31' 8" 18° 57'
Kaldbakr,	3699 3810	66° 0' 24"	30° 48' 58" 18° 15'

In the south-eastern quarter, nine heights range from 1000 to 3000 Danish feet, and eleven rise higher, viz.:

	Dan. feet=Eng. feet.	N. lat.	W. long. (C.) = Greenwich.
Stórhöfði,	4509 4643	63° 55' 34"	29° 17' 7" 16° 43'
Staðarfjall,	3782 3894	63° 57' 55"	29° 12' 51" 16° 39'
Örefajökull, ³	6241 6426	64° 0' 48"	20° 20' 16" 16° 46'
Thverártindsegg,	3668 3776	64° 11' 14"	28° 46' 12" 16° 12'

¹ The date "revealed to Moses" has long delayed the progress of science, and the 6000 years or so, still linger in the orthodox brains. The Hindus and the Molems were far wiser, or rather better informed; the latter provide for the countless Æons of the past by the theory of Pre-Adamite kings and races.

² The Jökull (*plur.* Jöklar) is explained *passim*. Suffice it here to say, that it is a mass of eternal ice formed by the enormous pressure of the superincumbent snow; it is not correct, but it is decidedly convenient to render it by "glacier." The Fell (our "fell," pronounced *Fedl* or *Fell*) is a single block or peak, and in the plural, a range or sierra; it is mostly free from snow during the summer heats. Fjall (*Fyadl*, and *plur.* Fjöll) is the generic term "mons" and *κατ' ἑξοχην*; it is applied in Icelandic literature to the Alps.

³ Here is the culminating point of the island, usually assumed at 6500 English feet, more than one-third higher than Vesuvius (4000 feet).

	Dan. feet=Eng. feet.	N. lat.	W. long. (C.) = Greenwich.
Birnudalstindr, . . .	4300 4428	64° 14' 54"	28° 34' 1" 16° 0'
Bakkatindr, . . .	3316 3414	64° 20' 50"	28° 50' 22" 15° 47'
Afréttartindr, . . .	3842 3956	64° 31' 4"	27° 33' 54" 15° 0'
Búlandstindr, . . .	3388 3488	64° 41' 54"	27° 3' 4" 14° 31'
Snæfell, ¹ . . .	5808 5964	64° 48' 1"	28° 11' 43" 15° 38'
Kistufell, . . .	3499 3602	64° 51' 18"	27° 11' 16" 14° 47'
Lambafell, . . .	3459 3561	64° 58' 28"	26° 39' 19" 14° 5'

In the north-eastern quarter, twenty points range from 1000 to 3000 Danish feet, and only three rise higher, viz. :

	Dan. feet=Eng. feet.	N. lat.	W. long. (C.) = Greenwich.
Illviðrahnúkr, . . .	3476 3579	66° 8' 14"	31° 37' 4" 19° 4'
Hvammfell, . . .	3785 3897	65° 39' 18"	31° 48' 21" 19° 14'
Mælifellshnúkr, . . .	3476 3579	65° 23' 30"	31° 59' 10" 19° 25'

In the south-western quarter, thirteen points range from 1000 to 3000 Danish feet, and again only three rise higher, viz. :

	Dan. feet=Eng. feet.	N. lat.	W. long. (C.) = Greenwich.
Snæfellsjökull, . . .	4577 4713	64° 48' 4"	36° 25' 8" 23° 51'
Hekla, ² . . .	4961 5108	63° 59' 2"	32° 19' 2" 19° 45'
Eyjafjallajökull, ³ . . .	5432 5593	63° 37' 2"	32° 16' 18" 19° 42'

From these tables we see that the north-eastern and south-eastern quarters contain not only the greatest number of heights, respectively twenty-five and twenty, exceeding 1000 Danish feet, but also the apex of Iceland. The north-western, though generally a high level, has only three master peaks, and the traveller's eye soon determines the south-western to be the lowest of all. It may here be remarked that the islanders have names for the mountains, peaks, and even blocks, as well as for the valleys, whereas the Arabs, as a rule, name only their wadys.

Upon the points above named,

“Nix jacet et jactam nec sol pluviaeque resolvunt
Indurat Boreas, perpetuamque facit.”

The snow-line above the tableland (1500 to 2000 feet) varies according to position and formation of ground from 2000 to 3500⁴ feet over sea-level. The mean has been laid down at 2830 feet.

¹ Usually assumed at 6000 English feet.

² Generally exaggerated to 5700 English feet.

³ Popularly reckoned at 5900 English feet.

⁴ This is about the forest limit of Scandinavia (2500 feet). The spruce fir first disappears, the Scotch fir rises a few hundred feet higher, and the highest is the birch, common and dwarf (*Betula alba* and *nana*).

Iceland, as far as it is known, contains few true glaciers. The best known of the Skriðjökklar, *glaciers mouvants*, the "vacillating jökuls" of Henderson (i. pp. 237, 265), protruded by the thrust from behind and above, are the southern offshoots of the great Klfajökull. Two have been often described—the Skeiðarárjökull and the Breiðamerkrjökull. Concerning these ice masses, which are confined, as far as is known, to the southern and the south-eastern shores, and which slope gently to the sea, it is generally believed in Iceland that the congealed tracts are diminishing. Professor Tyndall observed the same in the Mer de Glace, and Mr Freshfield on the Caucasus, where the excess of consumption over supply threatens to make the "gletchers" mere spectres of their former selves.

We now approach the modern formations, the volcanic tracts which overlie the plateaux of Palagonite, trap, and trachyte, and the valleys of elevation and erosion which cleave their masses. As usual throughout the world, the fire-vents are confined to the neighbourhood of the sea and lakes: the centre of Iceland is the Sprengisandur (bursting sand),¹ a black "Ruba' el Kháli." In many places the trap terraces have become a wall, over which great gushes of modern lavas have poured down towards the ocean—stone models of the waters which stream down the valleys, and which spring in cataracts from step to step.

Again, it is asserted, with premature generalisation, that the volcanic vents trend, as a rule, from north-east to south-west—a corollary of the "trachytic-band" theorem. The principal systems, which are the following, do not bear out this disposition, and it is probably true only of the south-western part of the island, which was first examined by travellers. Beginning from the north-west, we have the following list of eight great systems.

1. The Dranga²-Glámu system in the great palmated projection, the former lying north-east of the latter.

¹ Sprengisandur; from "sprengja," to burst, to split (in an active sense); "að sprengja hest," to burst a horse, to ride it till it bursts. This is the reason of the name: the Sprengisandur has so few halting places, that there is a danger of working the horse to death before coming to a station. It is generally and erroneously translated "springing," i.e., wind-blown, sands. The Ruba' el Kháli ("empty fourth," or quarter) is the great Arabian Desert.

² Drangr, = a lonely, upstanding rock; in popular lore, rocks thought to be giants turned into stones.

2. The Leirhnúkr, Krafla, and Heiðarfjall, near the Mývatn Lake. They anastomose, by the Ódáða-hraun, with the Vatnajökull and the Skaptár—the direction being north to south.

3. The Snæfellsjökull (Western Jökull) runs distinctly from west to east, ending at the sea-shore.

4. The Hofsjökull, including the Arnarfells branch to the east, and the Blágnýpujökull to the south-west. Occupying the centre of the island, it approaches the Túngnafellsjökull, an outlier of the Vatnajökull system to the south-east; and westward, it almost touches the north-eastern extremity of the long Reykjanes line.

5. The Hekla system, which the old theory of fissures connected with Etna. It lies on a parallel, a Palagonite ridge about 2000 feet high, extending from west to east through the Torfajökull, to the banks of the Skaptá.

6. The Vatnajökull, whose apex is Öräfa, the whole measuring some 330 miles in circumference, and occupying an area of 3000 to 4000 square geographical miles: stretches upon a parallel, and is connected by a meridian of lava-run with No. 2.

7. The Katla, or Kötlu-gjá system, again, is not linear, but disposed in a group at the southern extremity of Iceland. The principal items are the Mýrdals, Eyjafjalla, Merkr, Goðalands, and Tindfjalla Jökulls. This great mass is generally known as the Eastern Jökull, opposed to the Western or Snæfells.

8. The Reykjanes system is apparently the only diagonal which extends from the Fire Islands north-eastwards to Skjaldbreið, and to the snow mountains, whose northernmost point is Eyriksjökull. Its items are the Láng, the Ball, the Bláfells, the Geitlands, and the Ok.

Mr Keith Johnston, sen., and other authorities, give the following list of volcanic eruptions which have occurred during the present century.¹

¹ The total number of recorded eruptions between A.D. 894 and 1862 is given by Baring-Gould, Introduction, xxi.-xxiii. There have been eighty-six from twenty-seven (reckoned in round numbers to be thirty) different spots, and the intervals of repose have varied in Hekla from six to seventy-six years; in Kötlu-gjá from six to three hundred and eleven. Such is the statement generally made. The fact is, however, that the exact number of the eruptions is not known, as the annals are more or less confused. The number of volcanic foci in Iceland is popularly and roughly laid down at twenty, and of these three are called active—

1. Aust-Jökull (an indefinite term for the great Eyjafjalla system), in December 1820 to June 1822, and January to June 1823.

2. Mýrdals Jökull (or rather Kötlu-gjá) in 1823, from 26th June, covered about a hundred square miles with sand and ashes.

3. Skeiðar Jökull began to erupt February 13, 1827, and did considerable damage. No record of this outbreak is to be found.

4. The submarine eruption off Cape Reykjanes took place in 1831.¹

5. Hekla, in September 2, 1845(-46), broke out the twenty-sixth time, according to popular writers, throwing up ashes, which fell in the Orkneys, and which gave the first intelligence of the event.

6. Kötlu-gjá again was slightly active, vomiting ashes and water in May 1860, its thirteenth eruption.

7. It has been generally assumed that on March 23, 1861, the Öraefajökull broke its long rest, and the smoke is said to have tarnished silver at the distance of fifty miles. But Mr Jón A. Hjaltalín, who was in Iceland during that year, denies having heard of any convulsion, nor was it mentioned by the island papers. He adds, "What is spoken of in Metcalfe's book was a 'Jökul-hlaup.'"

An ash-eruption from Trölladýngjur is recorded in 1862, but accounts of it greatly vary. Mr Keith Johnston chronicles nine eruptions extending through nearly five centuries and a half—namely, the submarine volcano in the middle of Breiði Fjörð (A.D. 1345), Trölladýngjur (1510), Herðubreið (1716-17), "Krabla" (1724-25), Leirhnúkr (1730), Síðu Jökull (1753), Öraefajökull (1755), Hnappafellsjökull (1772), and Skaptárjökull (1783). And he further informs us that two great groups are active—Leirhnúkr, "Krabla," Trölladýngjur, and Herðubreið,²—all nearly on a parallel of latitude to the north-east; and Hekla,

Hekla, Katla or Kötlu-gjá, and the Vatnajökull volcano. It is a large proportion out of the total assigned to the world; the latter varies between the extremes of 167 and 300, showing the uncertainty of our present knowledge. Popular books speak of 2000 eruptions per century, or an average of twenty per annum.

¹ Smoke also appeared in the sea off Reykjanes, and pumice was thrown upon the shore during February 1834. This phenomenon was followed by an earthquake at Reykjavik, August 15-20, 1835.

² The formation of these four items will be explained in a subsequent page; they are very improperly massed together.

Aust Jökull, Myrdals, and Örafa, placed in a right-angled triangle to the south.

Concerning the unvisited volcano in the snows of the Vatnajökull, all procurable details will be found in the Journal. The author was surprised to find that not one of the known centres was in a state of activity, although every preconceived idea suggested that the summer of 1872 would be one of unusual perturbation.¹ Two days before the outbreak of Vesuvius (January 1, 1872), shocks began in the north-east of Iceland. On the after-

¹ The year after the author's departure witnessed an eruption of the Skaptárjökull, in the north-west corner of the Vatnajökull, but it lasted only four to five days. The following account appeared in the papers; nothing more has subsequently been learned about it. But how can this outbreak "witness against Captain Burton's assertion in the *London Standard*"—the same assertion which is here repeated in the text, and which was made in 1872?

"An Icelandic gentleman has kindly forwarded to us the following account of the eruption of the Skaptárjökull (announced by telegraph from Lerwick yesterday), as witnessed by him from Reykjavik, about 100 miles distant:

"REYKJAVIK, March 23, 1873.

"On Thursday, the 9th of January, about three o'clock A.M., we observed from Reykjavik a grand fire in east-north-east direction, and all agreed that it was "some neighbouring farm burning," with haystacks. The fire shot up like lightning, displaying beautiful evolutions in combination with the electricity above. Indeed, it was exactly like a fine display of rockets and wheels, and so bright was it, that during the dark morning hours we all thought it must be very close to Reykjavik. But when daylight dawned, and we could discern the mountains, we observed a thick and heavy column of vapour or steam far in the background, beyond all mountains visible, so it was clear that it was far off, and, according to the direction, it seemed most likely to be in Skaptárjökull, the west part of Vatnajökull—the great waste of glaciers in the east and south of the island. Morning and night this grand display was visible during the 9th, 10th, 11th, and 12th, and during the day the column of steam and smoke stood high in the sky.

"When similar news came from east, north, and west, all came to the same conclusion, that it must be in Skaptárjökull—witnessing against Captain Burton's assertion in the *London Standard*—and according to the different points of observation, and the statement of our newspaper at Reykjavik, the position of the crater ought to be between 64° 7' and 64° 18' north lat., and 30° 45' and 30° 55' west long. from the meridian of Copenhagen.

"In the east, near Berufjörð, as stated in the northern paper, some shocks were felt, and fire was seen from many farms. Ashes, too, had fallen over the north-east coast, so that pasture fields were covered so far that the farmers had to take their sheep into the huts and feed them. But the paper says: "In the south no earthquakes were felt, or noises heard in the earth, far or near, as far as Markarfljót (near Fyafjallajökull). Nowhere has been observed any fall of ashes or dust, but all aver a bad smell was felt, and also here in Reykjavik in the forenoon of the 10th. The people of Landeyjar (opposite Westmann Islands) assert the same to have been the case there on the first day of the eruption, but here, at Reykjavik, it was not observed that day, but we felt the air very close, particularly on the 9th, from three to five o'clock in the afternoon, with some smell of sulphur and powder, very like the smell from a lately discharged gunbarrel."

"No change was observed in the sun, moon, etc. The sky was clear all these days. The direction of the wind was from N.W.—W.S.W., and the weather fine. At Landeyjum the wind had been E.N.E. on the 10th, with a strong breeze,

noons of 16th and 17th April, Húsavík, a small comptoir to the east of Skjálfandi Fljót, suffered severely, as will appear in a future page. This immediately followed the fearful cyclone at Zanzibar (April 15), a phenomenon unknown in former times, which destroyed part of the town, and which sank most of the foreign and native craft,¹ doing damage estimated at £2,000,000. The earthquake at Húsavík also took place only thirteen days after the earthquake at Antioch (morning of April 3), which shook down two-thirds of the houses, and killed nearly one-third of the people. Moreover, shocks were reported at Accra on the Gold Coast, a town which had been almost destroyed some ten years before.² Followed (May 1) by the cyclone at Madras, which breached the pier, severely injured the city and suburbs, and wrecked eleven merchantmen, drowning many of the crew. Lastly came the report that the unseen crater in the untrodden snows of the Vatnajökull, whose smoke was first seen in August 1867, had again begun to "vomit flames."

Meanwhile the eruptions of Vesuvius continued till April 26, when a new crater built a hill in the Atrio del Cavallo, where only a fissure before appeared. Professor Palmieri, who stuck staunchly and gallantly to his observatory on the banks of the new Styx, reported that the mountain was sweating fire at every pore, and that after the showers of ashes and red-hot stones, and the discharges of lava and "boiling smoke," storms not less dangerous had begun to rage. These meteors, as a rule, occasion great floods, which, sweeping down the ashes and *rapilli* that cover the slopes, complete the ruins of the lands spared by the lava. During this eruption, a report was spread that the crater of Vesuvius had become an electric pile; that strong currents,

and the column of steam got very high, and mist hid all the eastern horizon, but no fall of ashes took place.

"This eruption lasted only four or five days, and is not likely to have done any damage to inhabited parts or pasture grounds, except in so far as the fall of ashes might hurt the sheep.

"The weather has been very changeable during the whole winter, but very little snow has fallen in the southern part of the country. The cod-fishing has been very favourable when the boats have been able to go out. During the stormy weather some fishermen were lost. On the 1st of March we had a very heavy fall of snow, but since then the weather has been mild but rather stormy."

¹ It was reported that there were a hundred wrecks, the "Abydos" alone being able to ride out the storm.

² I have given an account of this event in "Ocean Highways," February 1874.

generated by the violent ejections of the crater, showed themselves in lightnings, flashing with a dry and hissing sound from the great trunk of smoke and ashes; and, finally, that an earthquake might at any moment shake Naples to its foundation. This abnormal electricity may explain the meteorological peculiarities of the spring of 1872, even in England, where March behaved itself with the leonine violence of March. The great Pacific earthquake (August 1867) and the tremendous and unusual storm which simultaneously visited the eastern coast of South America, to quote no other instances, showed that, while similar effects usually are of limited extent upon solid ground, they stretch to great distances at sea, and they may influence the atmosphere in the furthest regions of the world. Though we may accept only as provisional the geological theory which places volcanoes upon fissures or solutions of continuity in the earth's surface,¹ we must remember that on October 17, 1755, a fortnight before the earthquake which shook down Lisbon, the Kötlu-gjá fissure began the terrible eruptions that lasted for a year: at the same time the waters of Loch Ness were agitated, the British Isles were rocked by repeated oscillations, and shock extended to Asia and to America. Again, in 1783, the Upper Calabrian earthquake (February 5 and 7, and March 28) was closely followed by the fearful phenomena of the Skaptárjökull. Thus Nature appeared to have made in the summer of 1872 every possible arrangement for a grand pyrotechnic display; yet the author can positively assert that during the whole of his stay in Iceland not one of the twenty-seven to thirty great vents showed a symptom of activity. Indeed, only one was ever reported to be in existence, and that one has never been visited.

¹ The late Professor Forbes was the first to show that Iceland, the Færoes, the Hebrides, Ireland, and Iberia, are connected by a "continuous tract of land, ranging from the Azores along the line of that belt of gulf-weed which exists between N. lat. 15° and 45°."

² This eruption is reported to have discharged a mass of lava greater in bulk than Mount Etna. According to Henderson (i. 274-289, who borrows from the account of Chief-Justice Stephensen), it destroyed 9336 human beings, 28,000 horses, 11,461 head of cattle, and 190,488 sheep. This mortality resulted either directly from the ejection of molten lava and stone showers, débâcles and aqueous lavas; or from pestilence, the effect of sulphureous and other noxious vapours; or from famine, the fish leaving the coast, and the pasturage being destroyed by erupted sand and ashes.

Professor Bunsen has shown that active volcanoes whose temperature is high, discharge sulphurous acid, whilst the dormant give forth sulphuretted hydrogen; hence the irregular and simultaneous appearance of these two gases which play a most important part in Iceland. "Let a piece of one of the igneous rocks be heated to redness, and permit the vapour of sulphur to pass over it. The oxide of iron is decomposed; a portion of sulphur unites with the iron which remains as sulphuret; the liberated oxygen unites with the remaining sulphur, and forms sulphurous acid. Let the temperature of the heated mass sink just below a red heat, and then let the vapour of water be passed over it: a decomposition of the sulphuret before formed is the consequence; the iron is reoxydised, and the liberated sulphur unites with the free hydrogen to form sulphuretted hydrogen. Thus the presence of two of the most important agents in volcanic phenomena is accounted for. These are experimental facts capable of being repeated in the laboratory, and the chronological order of the gases thus produced is exactly the same as that observed in nature."

The most remarkable features of the island, after the volcanic, are the Fjörðs,¹ or firths proper, conducting streams and admitting the sea; opposed to Víks and Vágrs, bights and bays, mere indentations of the coast. Though of igneous origin, they are compared with the granitic features of Norway, where a volcano is unknown, and yet where the shape becomes that of an *arête*, a fish's dorsal bone with regular ribs on both sides: this flat snow-capped ridge is "the keel" of the maritime population. The popular theory (Students' Manual of Geology, Jukes and Geikie, Blacks, Edin. 1872) is that the Fjörðs are glens once submerged, raised above water, and hollowed out by glaciers and by the various influences which come under the name of "weather." Glacial action is, we must own, distinctly traced in most parts of the island. But in many places, Berufjörð for instance, there is no room at the head of the dwarf amphitheatre for a glacier of any magnitude. As in the Færoe archipelago, these ravines are the rents and fissures which divided and

¹ Fjörðr, plur. Firðir.

fractured the first upheaval; and in Iceland they were bound together by the action of earthquakes and eruptions, ice and snow, wind and rain. The greater gorges are found chiefly on three sides of the island. The south-western shore, like that of Ireland, is digitated by gales, currents, and Greenland ice, and it abounds in "Út-ver,"¹ the narrow-necked peninsulas of Norway. The Síða, or sea-"side" to the south-east, is a long, narrow strip of habitable land between the mountains and the waters: here the Fjörðs were obliterated by the combined action of the Jökulls. Under the name "Fjörðs" are also included immense bays, as the Faxa Fjörð, sixty-five miles across; the Breiði Fjörð, forty-five miles wide; and the Húnaflói, into which the Arctic Sea sends its unbroken swell, running forty-six miles deep and twenty-seven in diameter. The western features are, as a rule, broad, with shallow sag: here, according to some,² was deposited the Surtarbrand³ or lignite, and, like the driftwood of Kerguelen Island, it escaped incineration by subsequent eruptions from causes analogous to the operation of charcoal burning. The northern firths are long and deeply indented, and the eastern are sharp and narrow, encased in walls of Palagonite, trap, and basalt.

The archipelagoes and solitary islands outlying Iceland are invariably small; and in places, as will be seen, the "stacks" and "dromgs" form a "skerry-guard," almost a false coast.

Concerning a common feature of the interior, the Gjá (pron. *Geeow*, or like *ow* in fowl), rent, chasm, or fissure, details will be given in the course of the Journal. Here it may be mentioned that it perfectly resembles the "Ka'ah" of the Lejá and the Haurán, and the Lava Fields in the Far West of North America, which lately sheltered the "Indians," and gave so much trouble to the Federal troops.

The surface of Iceland, where free from snow, and over which men travel, may be reduced to four general formations.

1. Loose, volcanic ashey sand, grey above and black below; often mixed with pulverised Palagonite; barred with white lines

¹ Út-ver in Icel. is an outlying place for fishing, etc.; hardly corresponding with the continental "udver."

² See Journal, chap. 5.

³ Surtur, *i.e.*, the Black, an Eddic name of a fire-giant.

of salt and potash, and either erupted subaërially or formed under water, as the rolled stones and pebbles show. This feature is found best developed in the central and the north-eastern parts of the island; the Sprengisandur and the Stórisandur (Sahará or Great Sands) being the great examples. The hills and terraces are utterly barren, because they will not hold water: the lower levels, fed by percolation, bear the normal growth, and especially the wild oat.

2. Stone; chiefly Palagonite, trap, basalts, trachyte, lavas, and obsidians, the *Μαύρα λιθάρια* of the modern Greeks. It is, however, far safer travelling than the polished limestone of the Libanus, and an hour's ride over calcareous Kasrawán is more troublesome than a day in Iceland. Its greatest inconvenience is perhaps the sun: during a clear day it becomes, in Icelandic phrase, "hot enough to make a raven gape." A fair specimen of the stone-country may be found between Reykjavik and Krísuvík.

3. Clay and humus, the former generally disposed in horizontal strata, the latter deposited by decayed vegetation upon the surface. These formations, the Geest-lands of Denmark, mostly extend round the hill feet, dividing them from the deeper levels of bog. They form essentially "rotten" ground; drilled with holes by frost, rain, and sun, and cut by gullies of all sizes, a plexus of wrinkles or gashes and earth-cracks, radiating from the highlands to the lowlands. When the path becomes a hollow way, sunk too deep for riding, rut-tracks straggle, as in the Brazil, over wide spaces and, after the vernal thaws, the traveller will find the "corduroys" of America and the "glue-pots" of Australia; whilst in places scattered stones are so many traps for careless horses. Yet these clays and humus are the best paths and, after the sands, give the fairest chance of a gallop.

4. Bog in Iceland clothes the hill-sides, as well as the bottoms and the "flats," that is, any low alluvial land: it is easily discovered from afar by the dull-red tint of iron-rust and the snow-white spangles of cotton-grass. There are two forms of profile: one lumpy, tussocky, and what one traveller calls "hassocky," like the graves of a deserted churchyard; the other a plane, the swamp pure and simple; often flooded after rains, and in the

dries provided with two or three veins, into which animals plunge, struggle, and fall. These channels change so frequently that none but local guides are of use, and often the best path leads to the place which has lately become the worst. Instinct and experience do something, but not much, for man and beast: both naturally prefer running water to stagnant, and when the foremost is bogged, the followers seek a better place either higher up or lower down. On frequented lines the impassable places are provided with "Brúr," dykes or causeways of peat or stone, traversed by rude arches and flanked by shallow ditch-drains.

The Heiði, or high divide separating two river-valleys, is a "dry-land wave" (κύμα χερσαίου), varying from 1500 to 2000 and even 3000 feet in altitude. These ridges, especially during the mist and fog, snow and hail, wind and rain, are the horror of native travellers, and few venture upon the passage in foul weather. The profile is a harsh caricature of our Scotch and Irish moors and mosses, bogs and swamps, combining all the troubles of sand, stone, clay, and slush; whilst the marshes and drains are most troublesome to cross. "Carlines," or old women (Vörður and Kerlingar),¹ are built in places where transit must be made at all seasons; but they are often useless, as the streams shift their bottoms, and permanent paths cannot be traced on what is neither water nor good dry land. At the beginning and end of the travelling season, snow-*fonds* and veins, based upon compressed ice, streak the slopes and dot the hollows, whilst natural arches and bridges, under which savage torrents gnash and foam, must be crossed on horseback. Concerning the behaviour of the snow, details will be found in the course of the Journal.

Roads are made in Iceland, like those of Syria, by taking off, not as in Europe by putting on, stones. In the more civilised parts of the island they are represented by horse-paths, which are occasionally repaired, and by sheep-paths, which are left to themselves: they humbly suggest the "buffalo" track of the prairie, and the elephant tunnel of the African forest. Not a few show worse engineering and tracery than those of olden Austria; hence we find upon the map such pleasant titles as

¹ Englishmen would call them "old men."

Húfta-brekk¹ (head-brink or slope), Hálsavegr (neck-or-nothing way), Íllaklif (evil cliff), and Ófæra or Úfæra, Úfærð (the untravellable)—the latter often applied to short cuts over the sea-sands where the wayfarer is exposed to a cannonade from the heights.

§ 2. HYDROGRAPHY.

The hydrography of Iceland has several peculiarities. A glance at the map shows that the Sprengisandur is the keystone of the flattened arch, which, averaging 2000 feet in altitude, forms the centre of the island. From this point the main lines diverge quaquaversally, except to the south-east, where the huge white oval, denoting the Vatnajökull, bars the way, and forms a drainage-system of its own. Hence none of the streams are navigable above the mouth, and their magnitude, as well as the dimensions of their basins, are out of all normal proportion to the area of the island. The four head rivers—Hvitá,² Thjorsá, Jökulsá (western), and Skjálfjandifljót (shivering or waving flood)—range from 100 to 160 miles in length. The Thjorsá is 150 miles long, and falls 2000 feet in twenty leagues, carrying more water than the Hudson of New York. "White River" is a common local name, the effect of glacier detrition giving the milky aspect familiar to every traveller in Switzerland, and hence, probably, the muddy White Nile, as opposed to the clear Blue River. A more unusual feature is the Fúli-lækr (foul or stinking stream); the iron pyrites, where the stones are ground to powder, part with their sulphur, and the latter, uniting with the hydrogen, accounts for the unsavoury name. The Jökulhlaup, or "Snow-mountain leap," is the sudden débâcle and exundation which spring from the congealed masses, often with the irresistible might and the swift destruction of the true avalanche.

¹ Henderson (i. 127) translates "Höfðabrecca" by "Breakneck." Hálsavegr is from "háls," Scottish "halse."

² Á (fem.) at the end of a word means a water, as Temsá = Thames River: so the German Don-au is the Iceland Dóná, the Danube. The root may be traced through the Sanskrit *Ap*, the Persian آب, and the Latin *Aqua* to almost all families of European speech. Uncomposed, the Icelandic "Vatn" means water or lake.

The streams in the south-eastern corner are the shortest and the most perilous, rising full grown from the glaciers, and sweeping down fragments and miniature floes of ice. Henderson is the first English traveller who forded and described the Skeiðará and the network called the Gnúpsvötn. We may here acquit him of excessive exaggeration: the natives of the eastern coast, when travelling to Reykjavik, prefer the immense round by the north to the short cut along the southern shore; and when asked the reason, they invariably allege the dangers of the snow-drains. In the course of the Journal we shall cross two of the four head streams, and observe a water-power amply sufficient for the wants of a first-rate European people. The principal cataracts are the Oxará, the Seljaland Foss, the Goða Foss, and the Dretti Foss, first visited by Baring-Gould. All have been described by travellers, and the highest is the Hengi Foss which we shall pass on the road.

Of the lakes (Vötn), we shall inspect the two largest, the Thingvalla-vatn¹ and the Mý-vatn; and we shall sight a multitude of tarns and ponds, single and grouped. One peculiarity is noticed in many of the minor waters. In Iceland it is emphatically untrue that lakes without drains are salt or briny—a rule apparently applicable only to the temperate and tropical zones. Whether the phenomenon in the north arises from subterranean drainage through the fissures of the bed, or if it be due to absence of saline matter in the area of drainage, which is often modern lava too hard to be sensibly degraded, we have no means of determining: perhaps there is a union of both causes.

A remarkable feature is the abundance of warm water laid on by the hand of Nature; the map shows upwards of two hundred; and here perhaps the hottest springs of the Old World are found. Suffice it to say at present that they are divided into two main groups. The acidulous and acid-silica, which redden litmus-paper, depositing gypsum and sulphur, do not

¹ In old vellums spelt invariably Vatz, Vaz, or Vazt, and Vass is the modern pronunciation. Only in two instances not dating earlier than the twelfth century, we find Vatr, with the *r* common to all Teutonic peoples, and showing its connection with Wasser and Water (Cleasby).

erupt: these are the "Öl-keldur" (ale springs) mentioned in the "Royal Mirror" of the twelfth century, and they are still locally and popularly distributed into three species. Some, like "martial" waters, inebriate from the abundance of carbonic acid gas; others when allowed to stand, part with their stimulating property; and others again when filled in rise elsewhere. The second class is the alkaline-silica, which restores the colour of litmus paper; it is often explosive, and it contains chiefly sodium and silica. In the valley of the Yellowstone River the springs are either (1.) Calcareous (alkaline), depositing carbonate of lime with sulphates of magnesia and soda, chloride of calcium, and a little silica; or (2.) Silicious (acid), containing 85 : 100 silica, chloride of magnesium, and only a trace of lime.

The Geysir (gusher)¹ is a spouting spring; the Reykirs (reekers) give forth steam; the Laug is a warm fountain which may serve as a bath; the Náma² (hole of hot water) is sulphurous and gaseous; the Hverr (cauldron), like its smaller congener the Ketill (kettle), is a tranquil, hot, and even boiling well or pool, it is also applied to mud springs; and the Makkaluber (the Italian "Salsa," or "Hofetta," and the American "Mud-puff") is a miniature volcano of hissing, boiling bolus. Further details concerning the names and natures of these features will be given in the Journal.

§ 3. CLIMATE.

The "cold of Iceland" is as proverbial as the "deserts of central Africa," and both sayings are equally based upon unfacts. "Iceland, where the cold and winter are perpetual, and the cold scarce to be endured," is what we read. But those who travel in the island find—(1.) that even in winter the temperature is rarely severe; (2.) that there are two distinct climates, on the north coast and in the southern country; and (3.) that the air, however unpleasant, is exceptionally wholesome.

1. The isotherms by no means follow the circles of latitude.

¹ Þajkull translates the word "to ascend violently." It is derived from *að gjósa*, to gush. Max Müller (Science of Language, Longmans, 1862) derives it from the root which gives ghost, geist, gust, yeast, gas, etc.

² The dictionary gives only Náma or Nami, a mine or pit, for this word of general use.

The cold lines swerve away from, instead of passing through, Iceland, and show none of that severity which characterises Greenland and the northern parts of British America. As has long ago been observed,¹ the isotherm of F. 32°, the freezing point of water, which is that of Akureyri, varies 14° between southern Asiatic Russia (N. lat. 56°) and northern Norway (N. lat. 70°).

The mildness of the insular climate, and that of the easterly winds, which are too clear to come from warmer waters, are popularly attributed to the "great Gulf Stream." This sea-river, we are told, "sweeping up from the south, brings with it a store of heat to bless the islanders, and so materially affects the island that in the south of Iceland the winter is not more severe than in Denmark." The Gulf Stream is generally supposed to strike the south-western angle, and to flow along the southern shores; while others make it bifurcate off Reykjanes, hence one part subtends the north-western point or Land's End of Iceland, where it meets the Polar and Arctic current, the other half embraces the southern shore, and both meet in the north Atlantic arm separating Iceland from Norway. Dufferin's map shows the popular belief: the true Florida current, sweeping past the southern shore of Iceland, forks about Spitzbergen, sending off a branchlet to the west, and ends south of Novaya Zemlja. On the other hand, Dr Carpenter contends that the real "River in the Ocean" dies out in the mid-Atlantic. According to Dr Joseph Chavanne of Vienna (*Mittheilungen*, No. vii., 1874), the northern arm of the Gulf Stream, which flows between Bear Island and Novaya Zemlja, touches the northern coast of Asia, and eastward of the New Siberia Islands joins the western drift of the Kurosiwo. The other northern branch, which subtends the western coast of Spitzbergen and the Seven Islands, is submerged between the Polar currents, to reappear at the surface farther northward, and thence to lave the shores of the Arctic continent: the latter is thus washed by two warm streams, rendering the existence of perennial ice a sheer impossibility.

We may fairly question the existence of the Gulf Stream along the southern Icelandic shore, and doubt its bifurcation

¹ Lyell's *Principles of Geology*, vol. i., p. 241, 11th edition. A fuller notice of this isotherm (32° F.) is given in Baring-Gould's *Introduction*, pp. xxx., xxxi.

and subsequent reunion. This is not the place to discuss the subject of ocean circulation, a "discovery equal to that of the circulation of the blood," first made by Professor Lenz of St Petersburg in 1845, based upon the second voyage of Kotzebue in 1823-26, and independently by Dr Carpenter during the cruise of the "Porcupine" (1869). Their aqueous movement corresponding with the aerial; and the mass of thermal equatorial waters travelling towards the poles, whilst the counter current sets in the inverse direction, would account for many phenomena yet unexplained, but it is still *sub judice lis*.¹ We may remark that the comparatively shallow seas between the British Islands and Iceland must accumulate heat, and that this fact perhaps suffices for what has been attributed to the Gulf Stream and to the general circulation. Thomas Bartolin (*Acta Medica Havn. ad annum 1673*) mechanically explains away the necessity of the former: "Aqua Insulas Ferroenses allabens, quamquam per se frigida sit, salsitudine tamen suâ, ex perpetuo motu, plerumque producit hyemem temperatam." Hence the waters of Niagara are colder above than below the falls, and the ocean is warmer after a storm.

Practical men, especially mariners, in Iceland vigorously deny the existence of the Gulf Stream.² Captain Tvede, an intelligent and observing Dane whom we shall meet in the eastern regions, considers that the theory, like judicial phrenology and a host of pseudo-sciences, became popular because it generalises, formalises, and simplifies facts. He declares that a Gulf Stream, if

¹ The question is of vast practical importance, Upon it hinges the decision whether future Polar voyages, so necessary to the advanced study of electrical phenomena, to mention no other, shall take the route by Smith's Sound or by Spitzbergen. For the battle of the Gulf Stream and Polar current between the Færoes and Iceland, see the *Mittheilungen*, xvi. (Nos. vi. and vii. of 1870), where the Gulf Stream is made to show 36°·5 F. as far as Novaya Zemlja, and to enter the Polar basin with diminution of temperature. The two distinct strata, the warm (40°-80° F.), and the heavier and more saline cold (about 35° F.) in the channel of the Færoes towards Scotland, have been described by Drs Carpenter and Wyville Thomson, the last time at the British Association, Sect. E, August 22, 1874.

² The author and his late friend F. F. Steinhæuser, were never satisfied with Admiral Maury's "Ocean River," even though this *ῥοή ὠκεανοῦ* flowed more rapidly and was a thousand times larger than the Mississippi—larger, indeed, than "all the rivers of the globe put together." Like the Pacific Kurosiwo or Black Stream, off Japan, it always suggested the idea of being only the main artery, the most important and noticeable part of a great whole.

it existed, would entangle the Greenland icebergs, and carry them to the southern coast of Iceland, which never happens. He asserts that a few miles south of Ingólfshöfði the Sea River is still warm, but that instead of striking the shore it trends directly north-eastwards to western Norway, sweeps round the continental North Cape, and here meets the icebergs from Spitzbergen and Jan Mayen. He has found himself in an ice-dock floating in water which showed 35° F.

Captain Tvede kindly gave me the following series of observations :

1. June 19, 1867: thermometer in water 46° F. outside of Hrollaugseyar, 6 miles east of Ingólfshöfði, 48° F. 3 miles south-east of ditto, and 47° F. 20 miles west of ditto.
2. June 20: thermometer 47° between Portland and the Vestmannaeyjar, 47° F. 12 miles west of the Vestmannaeyjar.
3. June 23: thermometer 46° in the Breiði Fjörð, off Stykkishólm.
4. June 24: 43° outside of the Dýrafjörð, and 43°-43°-50 outside of the Ísafjörð.
5. June 25: 38° off the Húnafljó, and 43° off Cap Nord.
6. July 1: 40° off the Axarfjörð.
7. July 4: 39° off the Langanes (north-eastern point of Iceland).
8. July 6: 40° off Viðivík, and 42° outside of Borgarfjörð.
9. August 4: 46° 16 miles south-east of Langanes.
10. August 6: 42° in the Testilfjörð, western side of Langanes.
11. August 10: 38° 50 off Hornnes, and 39° same day off Gerpir, 4 miles south of Hornnes.
12. August 19: 44° off Dalataur, entrance of Syðisfjörð.
13. August 21: 44° off Héradsfó.
14. August 22: 42° to north, with Kollumúli bearing south-west, 44° at sea.
15. September 1: 41° off Berufjörð.

The subjoined figures are the means of observations taken every fourth hour on board the "Jón Siggurðsson" steamer, in which the author voyaged (June 26 to August 5, 1872) between Hafnarfjörð and Grafarós :

	Air.	Water.	
1.	12° (C. = 53°-6 F.)	10° (C. = 50° F.)	at Reykjavik.
2.	11° (C. = 51°-8 F.)	8°-5 (C. = 47°-3 F.)	at Flatey.
3.	13° (C. = 55°-4 F.)	9° (C. = 48°-2 F.)	at N. lat. 66° 30', W. long. (G.) 24°.
4.	9° (C. = 48°-2 F.)	5°-8 (C. = 42°-4 F.)	at N. lat. 66° 10', W. long. 23° 12'.
5.	14°-5 (C. = 58°-1 F.)	8°-8 (C. = 47°-8 F.)	at Borðeyri.
6.	14°-5 (C. = 58°-1 F.)	8°-3 (C. = 46°-9 F.)	at Grafarós.
7.	11° (C. = 51°-8 F.)	6°-8 (C. = 44°-2 F.)	at Cap Nord.
8.	11° (C. = 51°-8 F.)	8°-5 (C. = 47°-3 F.)	at N. lat. 65° 8', W. long. 23° 24'.

Both series tend to show the capricious variation of temperature (from 38° to 48° F., and from 48°·2 to 58°·1 F.), where the summer sea is subject to the influx of a little snow-water, and none of the regularity which might fairly be expected from a "gulf-stream."

2. Every book of travels from Horrebow and Mackenzie to the present day, has given notices of the climate of Iceland.¹ The mean temperature of the Iceland year between 1828 and 1834, has been laid down at 3°·42 Reaumur (= 39°·7 F.). The annual average of Copenhagen is assumed at 46°·8 (F.); the maximum, observed in the shade, being 94°, and the minimum about 19° (F.). That of Montreal stands at 6°·30 Reaumur (= 46°·2 F.). The winters in Iceland are colder than in Montreal in October and November (both included); warmer from December to March, and again cooler from April to December. Eyjafjörð (N. lat. 65° 40') is more genial than Cumberland House (N. lat. 53° 57'), and much warmer than any place in its own parallel. The almost nightless summers from June to August, which must affect the respiration of plants, gather caloric, and the sun at that season fails to heat only at a very obtuse angle, when the rays are intercepted by a thicker column of air. The equatorial current which prevails in occidental England for eight or nine months during the year, as the south-wester in Iceland, must greatly modify the climate. Old travellers assure us that the sub-surface is frost-bound throughout the year; this takes place only after a succession of hard winters and ungenial summers—even the cellars are rarely frozen in winter if care be taken to close the doors. Mr Vice-Consul Crowe (first Report on Iceland, 1865-66), asserts that "the average temperature of the earth is about 4½° Reaumur all the year round."

Reykjavik, the capital of Iceland (N. lat. 64° 9'), enjoys a

¹ The most extensive are those of M. Victor Lottier (*Physique*, etc.), printed in the Gaimard work, and containing three parts: I. Observations of magnetism—declination, inclination, diurnal variation and intensity. II. Meteorology—barometer and thermometer; force of winds, Aurora Borealis, etc. III. Miscellaneous observations; astronomical phenomena; tides; remarks on maps and stations of the expedition. The Smithsonian Institute has published many studies of the Icelandic climate: in Scotland, also, as will presently appear, much has been done.

more genial climate than any place whose temperature is recorded between the parallels of 55° and 85° (N. lat.), except only St Petersburg (N. lat. 59° 56') and Sitka Sound (N. lat. 57° 3'). The mean of the year is but 1° (F.) less than that of St John's, which lies 16° farther south. The winter corresponds with that of Illukuk, 10° to the south, and the summer is much hotter. Humboldt's mean temperature, 40° F., is generally adopted, although some reduce it to 39°·4, and even to 39°. He makes February, the coldest month, average 28°·22, and July, the hottest, 56°·3—a difference of over 28°, which others reduce to 27°. He fixes the winter mean at 29°·1; the spring at 36°·9; the summer at 53°·6 (in Berghaus' Atlas, 50°); and the autumn at 37°·9. Dillon (pp. 167, 168), during the severest season of half-a-century, saw the mercury as low as 10° (F.), in February; and Pliny Miles (p. 55) declares that the thermometer seldom falls below 12° or 18°.

It will be remembered that the annual mean of climates, where civilisation is highest, represents in Europe 52° (F.), and the zone is 15° north and south of N. lat. 40°, an undulating belt of 30° arching towards the equator and the poles. Including its protraction eastward and westward, it contains $\frac{2}{10}$ ths of the white races, and almost all the greatest development.

Certain valuable "notes on the distribution of animals available as food in the Arctic regions," compiled by Herr Petermann, and published in the Journal of the R. Geog. Society (vol. xxii.), enable us to compare the thermometer in the south and in the north of the island. "Reykjavig" (N. lat. "64°·08") is placed between New Herrnhut and Fort Reliance, whilst Eyjafjörð (N. lat. 66° 30'), stands between Fort Hope and Winter Island.

The figures are as follows :

	Spring.	Summer.	Autumn.	Winter.	Annual mean.	Difference Sum. & Wint.
1. New Herrnhut,	26°·15	39°·28	26°·50	14°·30	26°·83	24°·48
Reykjavik, .	37°·04	53°·54	37°·94	29°·18	39°·43	24°·36
Fort Reliance,	„	12°·21	„	-16°·97	16° (?)	„
2. Fort Hope, .	-4°·73	39°·59	13°·93	-25°·09	5°·96	64°·68
Eyjafjörð, .	28°·10	45°·80	34°·46	20°·84	32°·30	24°·96
Winter Island,	6°·35	31°·80	17°·58	-20°·47	8°·32	52°·27

Ranged according to seasons and months, the figures stand :

SPRING.

New Herrnhut in February (coldest),	22°·10	in March	21°·65	in April	24°·80
<i>Reykjavik</i>	28°·31	„	29°·86	„	36°·46
Fort Reliance	-18°·84	„	-6°·14	„	8°·23
Fort Hope	-26°·68	„	-28°·10	„	-23°·95
<i>Eyjafjörð</i>	18°·50	„	20°·66	„	27°·50
Winter Island	-23°·99	„	10°·72	„	6°·48

SUMMER.

New Herrnhut in May,	32°·0	in June,	40°·10	in July, (hottest),	40°·33
<i>Reykjavik</i>	44°·80	„	51°·58	„	56°·19
Fort Reliance	36°·03	„	„	„	„
Fort Hope	17°·88	„	31°·38	„	41°·46
<i>Eyjafjörð</i>	36°·14	„	43°·52	„	46°·94
Winter Island	23°·29	„	23°·17	„	35°·36

AUTUMN.

New Herrnhut in August	37°·40	in September,	34°·03	in October,	32°·90
<i>Reykjavik</i>	52°·86	„	46°·45	„	36°·91
Fort Reliance	„	„	„	„	20°·70
Fort Hope	46°·32	„	28°·57	„	12°·56
<i>Eyjafjörð</i>	46°·94	„	43°·16	„	34°·34
Winter Island	36°·86	„	31°·61	„	13°·25

WINTER.

New Herrnhut in November,	15°·80	in December	11°·75	in January	9°·05
<i>Reykjavik</i>	30°·45	„	29°·41	„	29°·82
Fort Reliance	13°·44	„	-17°·07	„	-25°·00
Fort Hope	0°·68	„	-19°·27	„	-29°·32
<i>Eyjafjörð</i>	25°·88	„	18°·32	„	25°·70
Winter Island	7°·88	„	-14°·24	„	-23°·17

Dr Joseph Chavanne, before alluded to, gives the following table of the wind temperature at Reykjavik, showing the deviations from mean :

WINTER.—Mean Temperature — 1·8.

N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Max.	Min.	Diff.
3·6	-2·2	+1·3	+4·1	+3·7	+1·1	-1·4	-2·9	E. 68, S. +4·4	N. -3·6	8·0

SUMMER.—Mean Temperature + 11·0.

0·0	+0·5	+0·1	+0·2	+0·3	-0·7	-1·0	-1·3	E. 30, S. +0·7	W. 35, N. -1·6	2·3
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Thus the climate of southern Iceland is insular and not excessive. We have a notorious instance of the same dis-

position in England. With us Devonia represents the south-western coast of Iceland, and justifies Carrington's high praise :

"Thou hast a cloud
For ever in thy sky ; a breeze, a shower
For ever on thy meads. Yet where shall man,
Pursuing spring around the globe, refresh
His eye with scenes more beauteous than adorn
Thy fields of matchless verdure ?"

The northern climate of Iceland, distant only 3° or 180 direct geographical miles, is distinctly continental; the difference ranging between 14° and 17° (F.). This is easily accounted for by the Arctic current, by the proximity of Polar ice, and by the prevalence of northern and north-western winds, which, in south Iceland as in Palestine, drive away rain. Whatever discrepancy of opinion there may be concerning the Gulf Stream, there can be none about the cold drift which, between Greenland and Iceland, measures some fifty miles in breadth, and many hundred feet in depth. Hence the north-western digitations are more subject to floes and bergs than the Breiði Fjörð, which again is oftener invested than the Faxa Fjörð, the latter being rarely beset more than once during the century. According to Uno Von Troil, the sea-ice, now so rare, came regularly in January with the north-eastern gales, and was never far from the north-east coast. At present the season is about April and even later.

In the north, according to Metcalfe (p. 152), the winter is much keener, and the summer is proportionally milder than in the south; some observers deny the truth of the latter part of the proposition, and make the hot months average about the same figure. The snow often begins with October and lasts till mid-May when the temperature stands at a mean of 35° (F.). For Akureyri Baring-Gould (quoting the Almanak um Ár 1863), gives the year as 32° (F., freezing point = Eyjafjörð), the winter as 20°·7, and the summer 45°·5. He therefore determines that, while the mean of Reykjavik is very nearly that of Moscow, Akureyri almost corresponds with Julianshaab in Greenland.

At Stykkishólm on the mid-west coast (N. lat. 65° 4' 44",

and W. long. (G.) 22° 43' 17"), observations have been taken by Hr A. O. Thorlacius for nearly thirty years. The gross results are given in the following table, taken from the Journal of the Scottish Meteorological Society, iii. 148-304:

MEAN TEMPERATURE OF THE MONTHS AT STYKKISHÓLM,
during the Years 1845-71.

	Jan.	Feb.	Mar.	April	May	June	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Aver.
	28·1	26·9	27·8	33·1	39·8	45·6	49·1	48·2	44·0	37·7	33·1	30·4	37°·0
Highest mean, .	38·0	34·7	40·1	41·9	43·8	50·5	53·1	51·8	48·7	43·9	38·4	37·4	39°·8
Lowest mean, .	17·2	13·3	12·4	19·8	31·4	41·5	44·2	43·0	37·2	32·5	26·4	24·0	29°·7

Mr A. Buchan, the learned Secretary of the Scottish Meteorological Society, has printed in the same Journal (1873, pp. 304-307), the following highly interesting notice on the climate of Iceland, and especially of Stykkishólm, which appear to have great differences of temperature in the same months of different years.¹

"The mean annual temperature of the twenty-six years (1845-71) is 37°·0. The highest annual mean of any of the years was 39°·8 in 1847, and the lowest 29°·7, giving thus the enormous difference of 10°·1. This very low annual mean of 29°·7 occurred in 1866 under very exceptional circumstances, which were detailed by Mr Thorlacius in a letter 15th October 1866. Spitzbergen ice surrounded Iceland on the north and north-east coast from January to the close of August in a greater or less degree, and did not wholly disappear till about the middle of September. Its effect on the temperature of the summer was therefore perceptible. What enormous masses of ice filled up the ocean north of Iceland may be conceived from the fact that, in clear weather, its gleaming appearance could be observed from Stykkishólm twenty geographical miles, not only during the day but also at night. The depression of temperature which followed was very great, amounting on the mean of the year to 7°·3; of the nine months from January to September to 8°·1, and of February and March to 14°·5. Leaving, then, this exceptional year out of account, the next lowest annual mean was 33°·6 during 1859. Hence the coldest year fell short of the mean annual temperature to the extent of 3°·4, and the warmest year exceeded it by 2°·8.

"With 1859 began a marked diminution of temperature. For the previous thirteen years the annual mean was on each, except 1848 and 1855, above the average—the mean of these thirteen years being 38°·2, or 1°·2 above the average. For the next thirteen years the mean was only 35°·8. Thus the first half of the period was 2°·4 warmer than the last half.

"As regards the annual mean of temperature, the lowest (26°·9) occurs in February, and the highest (49°·0) in July—the difference between the coldest and the warmest months being thus 22°·1. The three coldest months are January, February, March, the mean temperature of which is 27°·6, that of

¹ The author has been unable to find at Trieste, the publications of the "Smithsonian Institute."

December being $2^{\circ}8$ higher. In the northern part of the British Isles, and at the western station of the Atlantic, these are also the three coldest months, but the difference between their mean temperature and that of December is comparatively small, whereas in the south-east and interior of Great Britain, December, January, and February are the three coldest months.

"In the extreme north of the British Isles, the warmest month is August, and the temperature of September, if it does not exceed, is nearly equal to that of June. But at Stykkishólm, July is the warmest month, and the temperature of September is $1^{\circ}6$ colder than that of June. Another point of difference between Iceland and Scotland is that at Stykkishólm, the mean temperature of April and that of November are the same, viz., $33^{\circ}1$, whereas in Scotland April is $44^{\circ}7$ and November $40^{\circ}3$, or April is $7^{\circ}4$ warmer than November.

"Hence the striking peculiarity of the climate of this part of Iceland is: During the cold half of the year the seasons are longer delayed than in any part of Great Britain. At Greenwich the mean temperature of April, as compared with November, being $6^{\circ}5$ warmer; at York, $4^{\circ}9$; at Aberdeen, $3^{\circ}9$; at Bressay, Shetland, $0^{\circ}8$; but at Stykkishólm, $0^{\circ}0$. On the other hand, during the summer months the seasons at Stykkishólm are not delayed as in Shetland and Orkney, but resemble in this respect the eastern district of Great Britain.

"The great annual increase of temperature takes place from April to June—the increase of April being $5^{\circ}3$, of May $6^{\circ}7$, and of June $4^{\circ}8$, and the great annual decrease from September to November—the decrease of September being $4^{\circ}2$, October $6^{\circ}3$, and of November $4^{\circ}6$.

"But the most remarkable feature in the Icelandic climate is the great differences which occur in the temperature of the same month from year to year. This is seen in the highest and lowest temperature of each month during the twenty-six years. Thus, as regards March, the mean temperature in 1846 was $40^{\circ}1$, but in 1866 it was only $12^{\circ}4$, thus showing a fluctuation of $27^{\circ}7$ in the mean temperature of March. The mean monthly fluctuation in the first four months of the year amounts to $22^{\circ}9$, and for the whole twelve months $14^{\circ}9$. As regards Scotland, the largest difference for any month during the past fifteen years was $11^{\circ}4$ —the temperature of December 1857 being $44^{\circ}9$, and of the same month 1870 being $33^{\circ}5$. In Scotland, the average of the whole twelve months is only $7^{\circ}1$, or less than half of Iceland. These singular fluctuations of temperature are readily explained by the position of Iceland with respect to the Arctic regions on the one hand, and to the Atlantic with its warm currents on the other. As more than usual prevalence of easterly winds rapidly and greatly depresses the temperature by bringing to its coasts the cold, if not also the frozen regions. On the contrary a prevalence of south-westerly winds disperses the cold, and pours over the island the genial warmth of the Atlantic. This fluctuating character of the season is frequently very disastrous, it being evident that such summers as that of 1866, whose mean temperature was only $42^{\circ}9$, will well-nigh altogether prevent the growth of vegetation."

The veteran observer Hr Thorlacius has laid down the following rule: "The great and sudden diminution of pressure which characterises the winter months is the outstanding feature of the

meteorology of Iceland.”¹ The barometric mean during twenty-five years at 37 feet above the sea is 29·602. There are two annual maxima of pressure, the greater in May and the lesser in November; whilst the minima are in January and October. The average yearly rainfall closely agrees with the lower parts of the Scottish Lothians—between 1856-68 the mean was 26·81 inches; the maximum (1868) being 34·23, and the minimum (1867) 21·28. The greatest amount fell in autumn and winter—in October 3·16 inches, and in May 1·41. The amount of melted snow, annually registered, ranges from 4 to 12 feet; the mean of twelve years is 7·43; the maximum (1863) is 12·21, the minimum (1867) 4·76. The snowy days average 82 per annum, and the greatest falls are in January, 1·40; in February, 1·34; in December, 1·24; and in March, 1·18. During seven of the twelve years no snow appeared in June; during ten none in July; during eleven none in August; and during five none in September. The severest storm remembered was in 1868; snow began on January 15, and lasted till the end of March, making 7·14 inches. With one or two exceptions, Greenland ice annually showed itself at Stykkishólm between 1859-69. Thunderstorms were very variable. None were registered between February 1860 and August 1861 (included), but sixteen during the six months between November 1853 and April 1854. Of 111 thunderstorms in twenty-three years nearly half were in December (twenty-five) and January (twenty-seven); two occurred in May and July, none in June and August. In the Færoes, also, thunderstorms are wintry, not summery: the reason seems to be that when the peaks are bare, electricity is equally distributed; but when they are invested with snow, a bad conductor, the local congestion relieves itself by discharges. Thunder is said to sound, as we might expect, unusually loud, the effect of rocky hill and stony dale.²

¹ Old writers declared that the mercury habitually rose higher in Norway and Iceland than in England and France; moreover, that the air particles being more compressed and heavier, diminished the weight of objects. Thus, we are assured, 1000 lbs. of copper at Rouen = 1010 at Thronhjøm.

² The author did not see a thunderstorm during his stay in Iceland. As regards reverberation, he remarked on the Camerones Mountain, when above the electrical discharges, and when free from the echo of earth, that the lightning was followed only by a short, sharp report, without any “rolling.”

3. The climate of Iceland, if not pleasant, is assuredly one of the most wholesome. All the English travellers upon the island in the summer of 1872 agreed that Anglo-Indians on "sick leave" should prefer a tour in the north to the debilitating German Bäder, or to the fantastic hydropathic establishments which are best suited to riotous health. Consumptive patients, and those suffering from constitutional and nervous debility, have of late years been diverted to the dry, cold, and bracing air of Canada, instead of the parts preferred by their fathers—Montpelier, with its dreadful *Vent de bise*; Pau, where the people describe their year as eight months of winter and four of *l'enfer*; Pisa, where Johannum and Barahút—the hot and cold places of punishment—seem to meet; and bilious Madeira, with its enfeebling, warm milk-and-water air, which may relieve the one-lunged, but is sadly trying to those with two. In Iceland throughout summer the stimulus of light is never wanting; rich, oily fish can always enter into the bill of fare; and the evidence is in favour of "free ozone," whose absence has accounted for the presence of cholera.¹ Hence phthisis hardly appears amongst the diseases of the islanders, although, when transported to warmer regions, they are as liable to it as natives of more genial climes. And whilst in Russia an overcoat may be necessary during the height of summer, in Iceland tourists walk about bare-headed at midnight.

There is a regular tide round the island, ebbing (Icel. fjara) and flowing (Icel. flóð) according to the rule of six hours. It sets into the Fjörðs, but in the offing it subtends the shore. According to old observers, these movements are stronger at the full and change, and strongest at the equinoxes. As every wind must blow more or less from the sea, those which pass over the least expanse of land bring rain condensed by the cold heights. Upon the coast there is a kind of daily trade following the summer sun's course, like that known in Norway.² Cyclones are ap-

¹ Ozone is utterly absent during the Sharki or Scirocco of Syria, and the trying effects of the east wind upon the constitution are well known to every resident. This is the more curious as it exists in the adjoining desert, when in the Nile valley and in the oases it is comparatively deficient. It has lately been proved to be everywhere more abundant in winter than in summer.

² It is there called Soel-far Vind (sun-faring wind); hence Sól-gangs veðr

parently wanting, but history records the most violent volcanic hurricanes; mountain squalls are the rule, and the smoke-gale of water-dust reminds us of the Continental Gauskuld, caused by the Finn-Lapp Magician sending forth his fly. In Iceland, as all the world over, the uplands are warmer than the lowlands—a fact well known to the ancients, but apparently puzzling to the modern traveller. “What is remarkable,” says Henderson (i. 104), “I found the temperature of the atmosphere twelve degrees warmer in this hyperborean region than it was below in the valley.” Yet it is easy to understand that whilst heated air rises, cold sinks; moreover, that, as a rule, there is more water, and consequently more evaporation, in lowlands than in highlands.

The mists (Mistar) are of the three kinds described by the Rev. G. Landt (Færoe Islands, London, Longmans, 1810): (1.) Skadda, or white cumulus on the hill-tops, supposed to show wet weather; (2.) Bolamjorkie, the vapour-belt which girdles the mountain flanks; and (3.) Mokyer (Icel. Thoka), the common fog of England.¹

The Aurora Borealis, which the pagans held to be an emanation of the Deity—a nimbus encircling some mighty brow—and in which Greenland sees ghosts playing with walrus' heads, is expected to appear in mid-August, but of course not so splendidly as in winter. The author never saw either streamers or zodiacal light. Uno Von Troil (p. 54) makes the former show from all quarters, but especially from the southern horizon. Metcalfe (p. 385) asserts that it ranges from north-east to south-west, and there is a popular idea that the focus is more easterly than it was a decade ago. In the Færoes it flashes either from west and north-west to east, or from east and north-east to west. The streamers are bluish-yellow, gold-coloured, and red; rarely

means weather of the sun's course. The normal continental winds are (1.) the Land-south (south-east), warm, and therefore called Korn-moen, or the mother of corn; (2.) the north-east, termed Hambakka because it melts snow from the hill-tops; (3.) the Haf-gul (sea cooler), the west wind or sea breeze of the tropics, blowing from noon till midnight; and (4.) the Land-gul (land cooler), the east or land breeze, lasting from 2 A.M. to 10 A.M.

¹ Mr J. A. Hjaltalín remarks, “Thoka is equivalent to the English fog, and *Sjólæða* (sea creeper) is the mist which lies on the surface of the water, leaving the hill-tops clear. These are the only Icelandic names known to me.”

blue, green, and scarlet. The latter are called *Lopt-eldr*¹ or lift-fire, which shows the sky aflame. It comes with strong winds and drifting snows, and, as in most hyperborean parts, it betokens great carnage over the place where it rises. Icelanders can no longer make the aurora draw nearer by whistling to it.

The Alpen-glow, also called the evening aurora, is often a glorious spectacle when the reflection of the blood-red west, showing that the sun has just set, falls upon craggy hill and lowland slope, lighting up every house and field to a distance of five or six miles, and washing colour over the daguerrotyped outlines, usually so hard and sharp. When distant objects seem near in most countries men predict rain, here the rule apparently fails. The "*Vetrar-braut*," or course of winter (Milky Way), is by no means so bright as some travellers have described it. In heathen times its appearance was used to forecast the hard months, especially as fortune-telling was part of the great autumnal feasts and sacrifices. The author never saw in Iceland the phosphorescent water supposed to betray the presence of electricity and ozone, nor the *fulgor brutum seu spurium* of romantic meteorologists. The rainbow (Icel. *Regnbogi Nikuðs*,² or of "Old Nick") is of course common; the twilights strike the stranger from the northern temperates as being unimportant like those of the tropics; and there is a name for the mirage or heat-reek, *Hillingar*, or *Upp-hillingar*, when rocks and islands look as if lifted ("up-heaved") from the level of the sea. The common meteors are the *Moorild* or moor-fire of Norway (*ignis labentes seu fatui*), here called *Hrævar-eldr*³ and *Snæljós*. Castor and Pollux in Christian times either became Saint Elmo's (San Telmo's) flames, or connected themselves with Saints Nicholas and Clare; hence the *Corpo Santo*, and hence our "corpulance," frequently observed by the circumnavigator *Pigafitta* (A.D. 1519-1522). The old English sailor regarded them as *Will-o'-the-wisps* intimately related to a certain *Davy Jones*. The others are the *Gýgjar-sól*

¹ The term is also applied to lightning, and to meteors generally. Hooker corrupts it to "*Laptellur*," and he has been copied into many a popular book.

² The word is written *Nikuðr* and *Nikuðs*, *Hnikar* and *Nikarr*: originally a title of Odin, it has survived in the Icel. *Nykr*, a nick or water-goblin in the shape of a grey sea-horse, with inverted hoofs; and in the German *Nix*, a nymph or water-fairy.

³ Or a "carrion lowe" (Cleasby).

(gow-sun) or *Auka-sólir*, mock sun (parabolia); and *paraselenæ* or lunar halos, with *Rosabaugr*, or storm-rings, literally "sleet-rings," the effect of minute ice spiculæ, or, perhaps, metallic particles, in the upper air refracting the light, and producing rainbow-hued circles and ovals, which often bisect one another. Water-spouts, the typhons of the Greeks, caused by the suction of clouds highly charged with electricity, have been observed. We read of fire-balls or shooting-stars (*Viga-hnöttur* or *Stjörnuhrap*); of electric flames and red-hot globes (volcanic bombs) discharged with loud detonations during eruptions; and the people still believe in the "fire-vomiting" of their craters. Modern science explains the phenomenon by the reflection of the brilliant, glowing, glaring lava and the red-hot scorïæ, upon the dust and ash column, and upon the "smoke-clouds," which are really steam and other vapours. Yet M. Abich declares that in the Vesuvian eruption of 1834, he distinctly saw the flame of burning hydrogen, and this, indeed, might be expected.

As has been observed, the year of grace 1872 was exceptional. It opened with the finest weather till the equinox, after which it broke and strewed the ground with four feet of snow. Rain endured till the last quarter of June, but the rest of the travelling season was absolutely delightful. Mild east winds prevailed at Reykjavik, and the warmth of the "sirocco," as it was called, set the citizens speculating upon the possibility of an eruption in the interior. After July 11th the sky was that of Italy for a whole fortnight. The autumn was rough, with heavy gales from north-east to east, and from south-east to south-west; there were also hard frosts about mid-November, after which the weather became as mild as in 1871. Dr *Hjaltalín*, Land-Physicus or Physician-General of Iceland, was inclined to think that the summers were waxing warmer in Snowland, as they are growing, or are supposed to grow, colder in Scotland.

The travelling season of 1873 was very raw and dry. From the 20th of June to the 20th of July strong north winds prevailed, and from the 16th to the 18th of July there was a considerable fall of snow. August was tolerably rainless, but cold, and winter set in in earnest about the 20th of September.

§ 4. CHRONOMETRY.

In these hyperborean regions the light season and the dark season represent the "dries" and "rains" of the tropical zone. The gradual changes from winter to summer, and *vice versâ*, known as spring and autumn, can hardly exist when the frost often binds the ground till mid-June, and reappears in latter August.¹ Thus the Edda of the old Northmen (*Vafthröðnismál*, Thorpe's trans., st. 27) very rightly distributes the year into only two parts:

" Vindsval hight he
Who Winter's father is,
And Svásud Summer's."²

The ancient heathen year contained 364 days ($12 \times 30 + 4$ Auka-nætr, or Eke-nights):³ the remaining day, with its fraction, was gathered up into an intercalary week, called Summer-eke or Eke-week, introduced by Thorstein Surt (the black) about the middle of the tenth century. Of old it was inserted at the end of summer every sixth or seventh year, which then numbered 191 days. The Gregorian style inserts it every fifth or sixth year. Thus 1872 is marked the "first year after Sumar-uki;" the years 1860, 1866, and 1871 being years with "Sumar-uki." New style was not adopted till A.D. 1700.

The light months technically began with the Thursday preceding April 16,⁴ O. S., = April 26, N. S. On that day children received their Sumar-gjöf (summer presents), which take the place of our Easter gifts. The season consisted of 184 days ($30 \times 6 + 4$ Auka-nætr); the eke-nights being inserted before midsummer, which parts the season into two halves, each

¹ Even at Trieste, which is the heart of the temperates, with the parallel of 45° passing near it, there is an autumn, but no spring, the weather changing at once from cold to heat.

² Svásuðr, the name of a giant, the father of Summer. See the Edda.

³ The way of counting amongst the old Scandinavians and Teutons was complex and curious, as they had no indeclinable numeral adjectives from twenty to a hundred (*i. e.*, 120): the word "tigr," a ten or decade, was a noun like *Hundrað* and *Thúsund*. Thus 41 was called 4 tens and 1, or "1 of the fifth decade;" 45 was "half the fifth tenth;" and 48 was "4 tens and 8;" or going back (like the Lat. *un-de-viginti* and *duo-de-triginta*) "5 tens short of 2." In the fourteenth century "tigr" began to lose its character as a substantive (*Cleasby*).

⁴ Mr Dasent says the Thursday between April 9 and 15 (O. S.).

of three months. Thus in the Iceland almanac for 1872, Sumar-dagr-fyrsti (first summer day) fell on Thursday, April 25; the Auka-nætr ranged between July 24 to 27; Mið-sumar was on July 28; and Sumar-dagr-síðasti (last summer day) happened on October 25. In modern usage the time from April to October is reckoned by the Sumar-vikur (summer weeks), the first, second, seventh, and twentieth; and the calendars mark every Thursday, during the light season, by the current number of the week. The "travelling time" extends from the Invention of the Cross (May 3) to St Bartholomew's Day (August 24). Meteorologically, summer opens with July. The winter, or dark half of the year (Vetr), began on the Saturday before St Luke's Day (O. S.), or that Saint's Day if a Saturday; and, like the summer, lasted twenty-six weeks. The Vetrar-dagr-fyrsti (first winter day) for 1872 and 1873 corresponds with Saturday, October 26. The following are the names of the months (Mánuðr or Mánaðr):

1. JANUARY—Icelandic, *Mörsugr*, "fatsucker;" Anglo-Saxon, *Æftera* (second) *Giuli* (Yule), from the turning or tropic of the sun; Old Danish, *Julemaaned*.
2. FEBRUARY—Icel, *Thorri*; A. S., *Sol monath*, from offerings made to the sun; O. D., *Blidemaaned*, or "blythe month."
3. MARCH—Icel, *Gói*;¹ A. S., *Rhed-monath*, "travel-month," or "month of the goddess Rheda," to whom warlike sacrifices were offered; O. D., *Törmaaned*, or "Thor's month"—hence Lucan (Phars., lib. i.):

"Et Taranus Scythicæ non melior ara Dianæ."
4. APRIL—Icel, *Einmánuðr*; A. S., *Eostre monath*, "Easter month," from the goddess Eostre; O. D., *Faaremaaned*, "fair month," or "sheep month."
5. MAY—Icel, *Harpa*, or *gaukmánuðr*;² "cuckoo month," or *sáðlid*, "sowing season;" A. S., *Trimilchi*, because the sheep were milked thrice a day; O. D., *Maimaaned*, taken from the classics.

¹ Modern, *Góa*.

² "*Gaukmánuðr*," according to Guðbrandr Vigfusson, from the middle of April to the middle of May. *Gaukr* is the Scotch gowk, the cuckoo. *Hrossa-gaukr*, "horse cuckoo," is the green sandpiper, from its peculiar cry (Cleasby). In Sect. 7 the word will be found to have another meaning.

6. JUNE—Icel, *Skerpla*, or *egglið*, "egg-season," or *stekklið*; A. S., *Ærra* (first) *Liða*, "serene sea;" O. D., *Hömaaned*, or "hay month." The 3d to 5th of June are called *Fardagar*, "fitting-days," because then householders change their abodes.
7. JULY—Icel, *Sólmánuðr*, "sun-month," or *Selmánuðr*, "sæter month;" A. S., *Æftera Liða*; O. D., *Ormemaaned*, or "worm (*lumbrici*) month."
8. AUGUST—Icel, *Heyannir*, or "time of haymaking," which ends about the middle of next month; A. S., *Weide monath*, "pasture month," or *Wenden monath*, "tare month;" O. D., *Hoestmaaned*.
9. SEPTEMBER—Icel, *Tvímánuðr*; A. S., *Haleg monath*, or "holy month;" O. D., *Fiskemaaned*.
10. OCTOBER—Icel, *Haustmánuðr*, "harvest or autumn month," or *Garðlagsmánuðr*, "the month for building fences;" A. S., *Winterfyllath*, or "winter-full;" O. D., *Sædemaaned*, "seed-month."
11. NOVEMBER—Icel, *Gormánuðr*, "gore-month," or "slaughter-month;" A. S., *Bloth monath*, "sacrifice-month;" O. D., *Slagtemaaned*, "slaughter month."
12. DECEMBER—Icel, *Frermánuðr*, "frost month," or *Ýlir*, "howler," from the howling storms; A. S., *Ærra Giuli* (first Yule); O. D., *Julemaaned*.¹

There is a quaint way of numbering the month-days by the knuckles of the closed fist, which denote the longer, while the intervals represent the shorter divisions, a *memoria technica*, thus taking the place of our mnemonic lines, "Thirty days hath September," etc. This "Dactylismus Ecclesiasticus,"² concerning

¹ According to the old Icelandic computation of time, as given in the *Almanak*, *Heyannir* was the first month, and began the 25th of July; II. *Tvímánuðr*; III. *Haustmánuðr*; IV. *Gormánuðr*; V. *Frermánuðr*; VI. *Mörsugr*; VII. *Thorri*; VIII. *Gói*; IX. *Einmánuðr*; X. *Harpa*; XI. *Skerpla*; XII. *Sólmánuðr*, ending on the 20th of July. From July 21st to 24th are called *Aukanætur*. The names of the months VII. to IX. are still popularly known. For the rest, the Icelanders count by winter weeks and summer weeks, when they do not use the common names of the months. The terms given by *Finnur Magnússon* in *Specimen Calendarii*, e.g., *Miðvetrarmánuðr*, *Föstuingangsmánuðr*, are never used, and it cannot be seen that they ever were known to the people.

² See the Icel. treatise called "*Fingra-rím*;" *rím* = computation, calendar: A. S. *rím*, and *ge-rím*.

which Bishop Jón Arnason wrote, is possibly what Uno Von Troil means (p. 118), "They make use of an art to discover the sun by their fingers."

The heathen week consisted of "Fimts" (pentads), whence, probably, the sacred pentagonal star of Odinism; and six of these formed the month. Thus the year was composed of seventy-two weeks, a holy number ($= 2 \times 36$, or 6×12). This old style lingered long after the introduction of the planetary heptad, and lasts in such expressions as "There are many turns of the weather in five days (a fimt), but more in a month." Yet the week (*vika*) was already in use about the middle of the tenth century. Bishop John, who died in A.D. 1121, induced Iceland to adopt the hebdomadal division, and the ecclesiastical names of the days, as they survive in Spanish and Portuguese, *e.g.*, *Feria secunda*, etc. Here we recognise, with the exception of the two first, the familiar Quaker custom :

SUNDAY is *Sunnu-dagr*, or *Drottins-dagr*, "the Lord's day."

MONDAY—*Mána-dagr*, modern Icel. *Mánu-dagr*.

TUESDAY—*Þriði*, or *Þriðju-dagr*, "third day."

WEDNESDAY—*Miðvik*, contracted to *Miðku-dagr*, the Germ. *Mittwoch*.

THURSDAY—*Fimti-dagr*, or "fifth day."

FRIDAY—*Föstu-dagr*, "fast-day," the O. Swed. *Vor Frudag*, "le jour de Notre Dame," who took the place of Freya.

SATURDAY—*Laugar-dagr*, "bath day," as in the times of England before "tubbing."

The old Icelandic names of the week days were : *Sunnudagr*, *Mánadagr*, *Týsdagr* (from *Týr*, *Tuisco*, the one-armed god of war), *Óðinsdagr*, *Þórsdagr*, *Frjádagr*, and *Laugar* or *Thvált dagr* ("washing-day," *i.e.*, Saturday).

Both Iceland and the Færoes have preserved the classical and Oriental system of dividing into watches (Icel. *Dagsmark*, *plur.* *Dagsmörk*, "day's marks"¹), corresponding with the "Pahar" still used throughout Hindostan. They ignored the hour, which

¹ *Dagsmark*, "day-mark," means both the space of three hours (*trihorium*) and the mark by which this period is fixed.

would have been too troublesome and minute. Wanting time-pieces, they used sundials (*Sólskifa*) and sand-glasses. The rudest form was the peak or cairn, whose shadow noted the time: the same system still prevails amongst the Bedawin. By the sun also they learned to calculate the periods of ebb and flow, and the southern altitude of the luminary denoted the meridian. In winter evenings time was marked by the position of the Pleiades, called, *par excellence*, the *Stjarna* (star). The other constellations found useful at night were *Örvindals-tá* (toe of Orwendel, = Rigel Orionis?); *Thjaza augu* (the eyes of Thiassi, = Castor and Pollux?); *Reið Rögnis* (Charles' Wain, the Wain of Rögn or Odin; whence also *Ragna-rök*, the twilight of the gods and doom of the world); and *Loka-brenna* (Sirius, Loki's fire, also referring to the final Odinic conflagration).

The Færoese divide the day into eight *öktur* (Icel. *eyktir*) and sixteen half-*öktur*, the word *Okt* being shortened from *octava*.¹ The Icelanders reckon nine like our seamen, the additional one being a "dog-watch," formed by dividing the 180 minutes into two. Their names are:

1. *Nátt-mál*, or night-meal to 9 P.M.
2. *Miðnætti*, to midnight.
3. *Ótta*, from midnight to 3 A.M.: "hana-óttu" is cock-crow.
4. *Miður-morgun*, also called *Hirðis-rismál*, "the rising time of the shepherd," to 6 A.M.
5. *Dagmál*, day-meal to 9 A.M. (*hora tertia*.)
6. *Hádegi*, or *Hirð-dagr*, "high-day" till noon.
7. *Mið-mundi*, first dog-watch from noon to 1.30 P.M.
8. *Nón*, in olden times also *Eykt*, second dog-watch from 1.30 P.M. to "nona," or 3 P.M.
9. *Miðr-aptn*, or mid-afternoon to 6 P.M.

The shortest day in the south averages five hours,² and the longest is everywhere twenty-four,

As will appear in the Journal, Iceland preserves the Hebrew style of beginning the civil day with evening, not with midnight

¹ Others derive it from *vika*, a week.

² Dillon reduces it at Reykjavik to three, and he found the sunlight during Christmas little lighter than our twilights; but the winter was worse than usual.

like the rest of Europe. So Tacitus (cap. ii.) of the Germans: "Nec dierum numerum, ut nos, sed noctium computant;" and the older ecclesiastical law reckoned the greater feasts from the nones or evenings of the preceding days. The hours are fractioned after the English-Norwegian, not the German fashion: thus 3.30 would be called "half (after) three," instead of "half (to) four" (halb vier). Similarly our seamen when heaving the lead sing out, "And a half three," *i.e.*, three fathoms and a half.

§ 5. SUMMARY.

Iceland has the general contour of Ireland with the eastern side turned round to face the Arctic Pole. It is a square, cut, furrowed, and digitated by the violence of the northern, the north-eastern, and the south-western winds and waves; and its shape is regular, and unsupplied with ports only in the south, where, like Sicily, it is least exposed to weather.

The "little white spot in the Arctic Sea" is the epitome of a world generated by the upheaval and the eruption; dislocated and distorted by the earthquake, and sorely troubled and tortured by wintry storms, rains, snows, avalanches, fierce débâcles, and furious gales. The far greater portion, the plateau above the seaboard, has a weird and sinister aspect; verging on the desolation of Greenland, and lacking the sternness and grandeur of nature in Norway. And nowhere, even in the fairest portions, can we expect the dense forest on the Alp, "up to the summit clothed with green;" the warbling of birds, the murmurs of innumerable bees, the susurrus of the morning breeze, or the melodious whispering of the "velvet forest:" their places are taken by black rock and glittering ice, by the wild roar of the foss, and by the mist-cloud hung to the rugged hill-side. We may not look for that prodigality of colour with which sun and air paint the scenery of the happier south. The first impressions recorded by travellers are the astonishing transparency of the atmosphere, the absence of trees, the metallic green of the grass-fields, the pink and purple sheen of the mountain heaths, the sharp contrast of Ossas and warts,

of ice and fire-born rock; and the prevalence of raw-white and dull-black hues, like gulls' feathers strewed upon a roof of tarred shingles, in fact the magpie suits of snowy jökull and sable fell.

Despite the almost hyperborean latitude, the frequent oases—Wadys or Fiumaras—of admirable verdure, soft and secluded from the horrors of loose sand and black lava, have suggested reminiscences of the Arabian wildernesses, whilst the caravans of ponies, the “dromedaries of the glacial desert,” add a special feature of resemblance.

The “general glance” of southern travellers is perhaps too gloomy. It was hardly fair of the ancient Icelandic poet (tenth century) to call his native island a “gallows of slush,” or for the modern Icelandic parson to describe it as “nothing but bogs, rocks, and precipices; precipices, rocks, and bogs; ice, snow, lava; lava, snow, ice; rivers and torrents; torrents and rivers.” Cleasby crudely assures us that “the whole of Iceland may be said to be a burnt-out lava field, from eruptions previous to the peopling of the country.” Henderson says rudely: “The general aspect of the country is the most rugged and dreary imaginable;” he quotes Jeremiah about a region “where all life dies, death lives, and Nature breeds all monstrous, all prodigious things;” and he dwells with apparent gusto upon the “doleful and haggard tracts,” through which it was his “privilege” safely to pass. Baring-Gould repeats: “The general aspect of Iceland is one of utter desolation.” Forbes gives an even more gloomy picture of repulsive deformity. One might be reading in these travellers a description of St Magnus' Bay:

“For all is rock at random thrown,
Black waves, blue crags, and banks of stone;
As if were here denied
The summer sun, the spring's sweet dew,
That clothe with many a varied hue,
The blackest mountain side.”

The harsh name “Iceland,” which took the place of the far more picturesque and correct “Snæ-land,” predisposes the wanderer to look upon this northern nature with unfriendly glance; but it is strange how her beauties grow upon him.

Doubtless the scenery depends far more upon colour and complexion than in the genial lands of the lower temperates. But, during the delightfully mild and pleasant weather of July and August, seen through a medium of matchless purity, there is much to admire in the rich meads and leas stretching to meet the light-blue waves; in the fretted and angular outlines of the caverned hills, the abodes of giant and dwarf; in the towering walls of huge horizontal steps which define the Fjörðs; and in the immense vistas of silvery cupolas, "cravatted" cones, and snow-capped mulls, which blend and melt with ravishing reflections of ethereal pink, blue, azure, and lilac, into the grey and neutral tints of the horizon. There is grandeur, too, when the Storm-Fiend rides abroad; amid the howl of gales, the rush of torrents, the roar of water-falls; when the sea appears of cast-iron; when the sky is charged with rolling clouds torn to shreds as they meet in aerial conflict; when the pale-faced streams shudder under the blast; when grim mists stalk over the lowlands; and when the tall peaks and "three-horns," parted by gloomy chasms, stand like ghostly hills in the shadowy realm. And often there is the most picturesque of contrasts: summer basking below, and winter raging above; peace brooding upon the vale and elemental war doing fierce battle upon the eternal snows and ice of the upper world.

Finally, there is one feature in Iceland which assumes a grandeur of dimensions unknown to Europe—the Hraun or lava stream. The "rivers of stone," like those of water, bear no proportion to the size of the island. The western arm of the Skaptárfellshraun, for instance, is nearly forty-eight miles long by ten of breadth at the lower end; and there are thousands of square miles covered by the Ódáða-hraun or Terrible Lava Stream. Every fantastic form, save of life, is there, and we cannot wonder if the peasant peoples them with outlying men or brigands. In a word, the student of Vulcanism must not neglect Iceland.

SECTION III.

HISTORICAL NOTES.¹

The author has no intention of troubling his readers with the normal "historical sketch," which is usually an uninteresting abridgment—"compendium, dispendium,"—handed down from traveller to traveller. But it may be useful as well as interesting to dwell upon both extremes of the island annals; upon the beginning which is a disputed point, and upon the end which is still causing so much movement.

The Landnámabók (i. 1) briefly relates how, "according to some, Naddodd the Viking, in the days of Harold Fairfax, when sailing from Norway to the Færoes, was driven westward, and came upon the eastern coast of the island which he called Snæland;" how the Swede Garðar Svafarson, after the earliest circumnavigation, named it Garðarshólm, and established Húsavík; how Flóki Vilgerðarson, a mighty corsair (hét Víkingr mikill) found ice investing the northern coast (A.D. 868) and gave the island its present grim and grisly title—"Greenland" being more kindly treated for advertising purposes, "a good name would

¹ Synopsis of dates :

- A.D. 860 (861, Uno Von Troil). Iceland touched at by Naddodd. About this time (862), the Scandinavians, according to Nestor, founded the Russian empire.
- „ 864. Garðar Svafarson built the first house in "Garðarshólm."
- „ 874. First official colonisation of Iceland by Ingólfur Arnarson.
- „ 877. Gunnbjörn discovered the Gunnbjörnarsker and coast of Greenland.
- „ 929. Althing or Diet founded by Ulfjót.
- „ 930-1300. Augustan age of literature under the aristocratic Republic.
- „ 981-1000. Official discovery of the New World by the Northmen.
- „ 982. Greenland visited by Eiríkr Rauði (Eric the Red), father of Leifur the Lucky.
- „ 986. First colony in Greenland established by the same. In 1124 the Bishop's See was placed at Garðar.
- „ 1262-1264. Iceland incorporated with Norway.
- „ 1380. „ „ „ Denmark.
- „ 1477. Iceland visited by Columbus.
- „ 1540-1551. Lutheranism prevailed over Catholic Christianity.
- „ 1800. Althing abolished.
- „ 1843. „ re-established.
- „ 1845. „ first met at Reykjavík.
- „ 1874. First Constitution granted to the island on the date of its Millenary after Ingólf's settlement.

induce people to settle there;" how Flóki's companion Thórólf, describing it as a place where butter dropped from every plant, the northern equivalent of "flowing with milk and honey," gained the nickname of Thórólfr Smjör (Butter Thorolf); and finally, how Ingólfr, banished for murder, accompanied by his foster-brother and friend, Leifr, or Hjör-leifr (Leif of the sword), Hróðmarsson, settling in A.D. 870-874, the latter was murdered by his Irish thralls—an agrarian outrage which has since happened to many a landlord in the Emerald Isle. This official occupation of Ultima Thule took place shortly after King Alfred had defeated the Danes (A.D. 871): thus 1874 is the Millennium of Iceland colonisation, as 1872 was the Jubilee of Harold Fairfax, and as 1876 will be the Centenary of Freedom in the U.S.

But the Landnámabók proposes to itself a subject, the emigration of the pagan Northmen, who *nim'd* (Icel. "námu") the island,¹ and a few sentences, short and vague, are deemed sufficient for the older occupants. Later Scandinavian authors generally have satisfied themselves with repeating its statements, and have clung to a tradition which evidently does not date from ancient times. The argument relied upon by Arngrímur Jónsson has been often quoted; yet it appears far from satisfactory. The author is well aware of the difficulties to be encountered when supplementing the imperfect relation, and the "weight of tradition and historical circumstances" which lies in the way; he can hardly flatter himself with having succeeded, but he hopes that he has shown a case worthy of being taken in hand by some scholar who has leisure and inclination for the task.

The first modern writer who presumed to differ from the Landnámabók was, it is believed, Pontanus the Dane (loc. cit., Amstelodami, A.D. 1631, folio, p. 754). He gives the following extracts from the Bull of Pope Gregory IV., which he dates from A.D. 835, or thirty-nine years before the official date of discovery

"Ipsum filium nostrum, jam dictum Ansgarium et successores ejus legatos in omnibus circumquaque gentibus Danorum, Sueonum, Norvagorum, Farriæ,

¹ i.e., Land-nim- (Germ. nehmen, "Corporal Nym," and modern slang, "to nim") book.

Groenlandensium, Helsingelandorum, Islandorum, Scritifindorum, Slavorum; necnon omnium Septentrionalium et orientalium nationum quocunque modo nominentur, delegamus et posito capite et pectori, super corpus et confessionem Sancti Petri Apostoli sibi suisque successoribus vicum nostram perpetuo retinendam, publicamque evangelizandi tribuimus auctoritatem," etc., etc.

Presently Pontanus quotes the following words from the Præcept of King Louis the Mild (regn. A.D. 814-840), son of Charlemagne, a document bearing date the year before the papal Bull (*i.e.*, A.D. 834):

"Idcirco Sanctæ Dei Ecclesiæ filiis præsentibus scilicet et futuris, certum esse volumus, qualiter divinâ ordinante gratiâ, nostris in diebus, Aquilonalibus in partibus, scilicet, in gentibus Danorum, Sueonum, Norvagorum, Farrisæ, *Groenlandorum, Helsinglandorum, Scritofinnorum, et omnium Septentrionalium et orientalium nationum magnum celestis gratia predicationis sive acquisitionis pateficit ostium, itâ ut multitudo hinc inde ad fidem Christi conversa, mysteria cælestium ecclesiasticæ subsidia desiderabiliter expetaret, unde Domino Deo nostro laudes immensas persolventes extollimus, qui nostris temporibus et studiis Sanctam Ecclesiam, sponsam videlicet suam, in locis ignotis sinit dilatari ac pateferi," etc.*

Here it is possible that "Greenland," being mentioned with the islands and terra firma of Europe, may be the name of some district in the Scandinavian peninsula, and it has been suggested that "Iceland" may occur under similar conditions. In the Zeni Voyages, the Shetlands are called Estlanda, Eslanda, and Islande. But while a southern Shetland kept its place, the Shetlands were moved up to the north-east coast of Iceland, like the Orkneys to the south-east. He, therefore, who discovered the northern Shetlands, would also discover Iceland.

Evidently the first point is to consult an official copy of the Gregorian Bull referred to by Pontanus. The Very Rev. Father O'Callaghan, Principal of the English College, Rome, obliged the author with the following full extract:

From the First Volume of the BULLARIUM ROMANUM. Printed at Turin, 1857. Pages 279, 280.

"Confirmatio Sanctæ Sedis Hamburgensis in ultima Saxonis parti trans Albiam; cui Ecclesiæ Ansharius præficitur Archiepiscopus, datoque ei pallio, sibi subjectis gentibus apostolicæ sedis legatus constituitur."¹

¹ Cointius Annal. Benedict. tom. viii., et Bollandus die 3 febr. in Comment. previo ad vitam S. Ansharii, § xvii., Copenhagen, 1857.

SUMMARIUM.

“Carolus Magnus Saxones ad Christi fidem perduxit—Hamburgensem sedem episcopalem constituit.—Ansharius¹ et successores Hamburgenses archiepiscopi legati sedis apostolicæ apud Danos, Sveones, Slavos, etc., delegantur.—Sedes Hamburg. vulgo d. archiepiscopalis efficitur.—Jus eligendi archiepiscopos penes Palatinos principes.—Anathema contra decreti hujus temeratores.—Pallium Anshario et successoribus.—Ad eundem Ansharium saluberrimæ adhortationes.

Carolus Magnus Saxones ad Christi fidem perduxit;

Hamburgensem sedem episcopalem constituit.

Ansharius et successores Hamburgenses archiep. legati Sedis Apostolicæ apud Danos, Sveones, Slavos, etc., delegantur.

Sedes Hamburg. vulgo d. archiepiscopalis efficitur.

Jus eligendi archiepiscopos penes Palatinos principes.

Anathema contra decreti hujus temeratores.

Pallium Anshario et successoribus.

“Gregorius episcopus servus servorum Dei Omnium fidelium dinoscens certum esse volumus, qualiter beatæ memoriæ præcellentissimus rex Karolus, tempore prædecessorum nostrorum, divino afflatus spiritu, gentem Saxonum sacro cultui subdidit, ingumque Christi, quod suave, ac leve est, adusque terminos Danorum sive Slavorum, corda ferocia perdomans docuit, ultimamque regni ipsius partem trans Albiam inter mortifera Paganorum pericula constitutam, videlicet ne ad ritum relaberetur Gentilium, vel etiam quia lucrands adhuc gentibus aptissima videbatur, proprio episcopali vigore fundare decreverat. Sed quia mors effectum prohibuerat, succedente ejus præcellentissimo filio Hludewico imperatore Augusto, primum studium sacri genitoris sui efficaciter implevit. Quæ ratio nobis per venerabiles Ratoldum, sive Bernoldum episcopos, necnon et Geroldum comitem, vel missum venerabilem relata est confirmanda. Nos igitur omnem ibi Deo dignam statutam providentiam cognoscentes, instructi etiam præsentia fratris filiique nostri Ansharii primi Hordalbingorum archiepiscopi, per manus Drogonis Metensis episcopi consecrati, sanctum studium magnorum imperatorum, tam præsentis auctoritate, quam etiam pallii datione, more prædecessorum nostrorum roborare decrevimus; quatenus tanta auctoritate fundatus prædictus filius noster, eiusque successores lucrands plebibus insistentes, adversus tentamenta diaboli validiores existant, ² *ipsumque filium nostrum iam dictum Ansharium, et successores eius legatos in omnibus circumquoque gentibus Danorum, Sveonum, Northæorum, Færricæ, Gronlandan, Halsigolandan, Islandan, Scridevindum, Slavorum, nec non omnium septentrionalium, et orientalium nationum quocumque modo nominatarum delegamus, una cum Elbone Remensi archiepiscopo; statuente, ante corpus et confessionem Sancti Petri, publicam evangelisandi tribuimus auctoritatem, ipsamque sedem Nordalbingorum, Hammaburg dictam, in onore Salvatoris, sanctæque eius, et intemeratæ genitricis semper virginis Mariæ consecratam, archiepiscopalem deinceps esse decernimus. Consecrationem vero succedentium sacerdotum, donec consecrantium numerus ex gentibus augeatur, sacræ Palatinæ providentiæ interim committimus. Strenui vero prædicatoris persona, tantoque officio apta in successione semper eligatur: omnia vero a venerabili principe ad hoc Deo dignum officium deputata, nostra etiam auctoritate pia eius vota firmamus: omnemque resistantem, vel contradicentem atque piis nostris studiis his quolibet modo insidiantem, anathematis mucrone percutimus, atque perpetua ultione reum diabolica sorte damnamus, ut culmen apostolicum more prædecessorum nostrorum, causamque Dei pio affectu zelantes ab adversis hinc inde partibus tutius muniamur. Et quia te, carissime fili Anshari, divina clementia nova in sede primum disposuit*

¹ “The Apostle of the North,” a monk from the monastery of New Corvey, in Westphalia, who introduced Christianity to Denmark about A. D. 827.

² The words in italics are those quoted with variants by Pontanus, who, however, has added nothing to nor has he taken aught from the sense.

esse archiepiscopum, nos quoque pallio tibi ad missarum solemnias celebranda tribuimus, quod tibi in diebus tuis, uti et Ecclesie tue perpetuo statu manentibus privilegiis uti largimur. Idcirco huius indumenti honor morum a te vivacitate servandus est: si ergo pastores ovium sole, geluque pro gregis sui custodia, neque ex eis aut errando pereat, aut ferinis lanianda moribus rapiatur, oculis semper vigilantibus circumspectant, quanto sudore, quantaque cura debeamus esse pervigiles, nos qui pastores animarum dicimur attendamus. Et ne susceptum officium in terrenis negotiis aliquatenus implicare debeas ammonemus. Vita itaque tua filiis tuis sit via; in ipsa si qua fortitudo illis inest, dirigant, in ea quod imitentur aspiciant; in ipsa se semper considerando proficiant, ut tuum post Deum videatur esse bonum, quod vixerint. Cor ergo tuum neque prospera, quæ temporaliter blandiuntur, extollant, neque adversa deiciant; districtum mali cognoscent, pium benevoli sentiant. Insonem apud te culpabilem malitia aliena non faciat, reum gratia excuset; viduis, ac pupillis iniuste oppressis defensio tua subveniat. Ecce, frater carissime, inter multa alia ista non sacerdotii, ista sunt pallii, quæ si studiose servaveris, quod foris accepisse ostenderis, intus habebis. Sancta Trinitas fraternitatem tuam diu conservare dignetur incolumem, atque post huius sæculi amaritudinem ad perpetuam perducat beatitudinem. Amen.”¹

Father O’Callaghan adds:

“I have carefully examined the fourth volume of the *Bullandists*, and find that they agree with Mabillon in omitting mention of Iceland and Greenland in their version of the Bull.² The introductory commentary to the *Life of St Ansharius* (§ xii.), there given under the date of February 3, will suggest an explanation of the way in which the interpolation seems to have occurred.”

The quotation of Mabillon (*Acta Sanctorum Ordinis S. Benedicti, Sæculi Quarti, Pars Prima, 123, 124, fol., Venetiis, 1738*) is as follows:

BULLA GREGORII.

“Ipsumque filium nostrum, jam dictum Ansgarium Legatum in omnibus circumquaque gentibus Sueonum sive Danorum [*omitting the ‘Norvavorum, Færricæ, Groenlandensium, Helsingelandorum, Islandorum, Scritifndorum,’ of Pontanus*] nec non etiam Slavorum [*omitting ‘nec non omnium Septentrionalium et orientalium nationum, quocumque modo nominentur, delegamus et posito capite et pectori,’ of Pontanus*], vel in cæteris ubicunque illis partibus constitutis divina pietas ostium aperuerit, una cum Eboni Rhemensi archiepiscopo, statuentes ante corpus et confessionem Sancti Petri publicam evangelizandi tribuimus auctoritatem.”

Furthermore, the *Acta Sanctorum* thus shortens the “*Præceptum Ludovici Imperatoris*”:

¹ Data est hæc bulla post annum 834, quamvis ab aliquibus et præsertim a Pontano in rebus Danicis eo anno adscribatur.

² Here, again, the question is simply, “Has the Bull been tampered with or not?” It would evidently be desirable to consult the earliest copies still extant, but unfortunately the author has no power of so doing at present. The Bull of Pope Nicholas V. (A.D. 1448) should also be carefully inspected. See p. 84.

“Idcirco Sanctæ Dei Ecclesiæ filiis, presentibus scilicet et futuris, certum esse volumus, qualiter divina ordinante gratia nostris in diebus, Aquilonalibus in partibus, in gente videlicet Danorum sive Sueonum [omitting the ‘*Norvagorum, Farriæ, Groenlandorum, Helsinglandorum, Scritofinnorum, et omnium Septentrionalium et orientalium nationum,*’ of Pontanus] magnum cælestis gratia prædicationis sive acquisitionis patefecit ostium.”

It is curious to remark that the same tampering has been attributed to the Præcept as to the Bull, and it is not easy to divine the mode in which the double fraud was so successfully effected.

Mr Jón A. Hjaltáin, who owns to “grave doubts about the historical value of Danish chronicles recording dates of this period,” supplies the following excerpts from the “*Vita Sancti Anskarii, a Rimberto*” (Archbishop of Hamburg) “et alio discipulo Anskarii conscripta” (before A.D. 876), “edidit C. F. Dahlmann, Prof. Göttingen.” The editor’s preface contains these words of

INTRODUCTION.

“In edenda Anskarii vita hi codices et editiones subsidio fuerunt.

“(1.) . . .

“(2.) Codex Vicilini . . . textum exhibet ex eodem limpido quidem fonte manantem, sed consulta opera ita mutilatum et interdum interpolatum, ut facile suspiceris, ambitionem insatiabilem Adalberti archiepiscopi Bremensis, qui sub Henrico IV. imperatore patriarchatum septentrionis machinabatur, in hac fraude versatam. Recisa enim sunt, et ita quidem recisa, ut plane nihil deesse videatur, omnia, quæ de Ebonis, archiepiscopi Remensis, meritiis et legationis ejus in septentrionem susceptæ privilegiis verissime Rimberty ex ore Anskarii excerpta scripsit, deest amissa cella Turholt, disceptatio interdioceses Bremensem et Verdensem unacum levamento damni quod Verdensis accepit, verbo omnia, quæ fideliter narrata ecclesiæ Bremensi detrimentum facere possent; contra addita dominatui Bremensi Ialandia, quam Hibernicis quidem Anskarii ætate jam innotuisse nuper didicimus e Dicuilo, at plane tunc ignota Scandinavis et Germanis, æque ac Groenlandia, Færoæ insulæ, reliquæque fraudulentè inculcatæ remotissimæ regiones.”

TEXT.

“Cap. 13. Et ut hæc omnia perpetuum suæ stabilitatis retinerent vigorem, eum honorabiliter ad sedem direxit apostolicam, et per missos suos venerabiles Bernoldum et Ratoldum episcopos ac Geroldum illustrissimum comitem omnem hanc rationem sanctissimo papæ Gregorio intimari fecit confirmandam. Quod etiam ipse tam decreti sui auctoritate, quam etiam pallii donatione, more prædecessorum suorum roboravit, atque ipsum in præsentia constitutum legatum in omnibus circumquaque gentibus Sueonum sive Danorum, nex non etiam Slavorum, aliarumque in æquilonis partibus gentium constitutarunt, unacum Ebone Remensi archiepiscopo,

qui ipsam legationem ante susceperat, delegavit : et ante corpus et confessionem Sancti Petri apostoli publicam evangelizandi tribuit auctoritatem."

EDITOR'S NOTE.

"Codex Vicilini hunc ita interpolatum exhibet locum, ut sublata plane Ebonis mentione, in majorem ecclesie Hammaburgensis gloriam nomina septentrionalium tunc inaudita adsuant, quæ fraus etiam latius sersit interpolationibus ipsius bullæ papæ Gregorii : 'Gentibus Sueonum, Danorum, Fariæ, Gronlondon, Islondon, Scrideuindun, Slanorum, nec non omnium septentrionalium et orientalium nationum quocunque modo nominatarum delegavit. Et posito capite et pectore super corpus et confessionem Sancti Petri apostoli, sibi suisque successoribus vicem suam perpetuo retinendam publicamque evangelizandi tribuit auctoritatem' (Cod. Vicilinus). Manifesta utique interpolationum hujus loci et bullæ papalis fraus, quam ab Adalberto archiepiscopo, Adami Bremensi equali, ad quem extremi venerunt Islandi, etc., profectam, cum Langebekio suspicamur" (G. H. Pertz, Monumenta Germaniæ Historica, tom. ii., p. 699).

VITA S. RIMBERTI (Ex Codice Vicilino).

Edidit G. H. PERTZ.

"Imperator Hludowicus . . . extremam plagam aquilonarem ejusdem provincie ad hoc reservaverit, ut ibidem archiepiscopalis construeretur sedes, unde prædicatio verbi Dei finitimis fieret populis, Suenonum, Danorum, Norweorum, Fariæ, Gronlandan, Islandan, Scridivindan, Slavorum, nec non omnium septentrionalium," etc.

EDITOR'S NOTE.

"'Norweorum—Scridivindan,' hæc pro supposititiis habet Henschenius. Sed obstant diplomata ab imperatoribus summisque pontificibus ecclesie Hamburgensi concessa. 1. Hludowicus I. post Danos et Sueones etiam 'gentes Norweorum, Fariæ, Gronlondon, Halsingalondon, Islandon, Scridevindan, Slavorum et omnium septentrionalium et orientalium nationum' addit. 2. Gregorii IV. diploma eadem adjicit. 3. Charta Johannis X. pro Unni archiepiscopo a. 915 Norweos, Islandon, Scridevindon, Gronlondon. 4. Benedictus IX. in charta Adalberto archiepiscopo a. 1042 aut 1043 concessa 'Hislandicorum et omnium insularum his regnis adjacentium.' 5. Victor II. in diplomate a. 1055, Oct. 29, Islandon, Scridivindan, Gronlondon; et 6. Innocentius II., a. 1183, d. Maii 27, Fariæ, Gronlondon, Halsingaldia, Island, Scridivindan et Slavorem mentionem injeecerunt. Hæc aliaque ejus ecclesie diplomata in codicibus diversis, uno, quem ante oculos habeo, sæculi XIII. . . . altero Philippi Cæsaris quem codici Vicilini valde similem fuisse constat, occurrunt; quorum de fide eo saltem non dubitare possumus, quod alia diplomata quæ hodie supersunt eorum exemplis hic adservatis congruunt. Igitur aut non unum sed quinque studio Adalberti archiepiscopi falsata credas, et tunc haud intelligeretur, cur Adalbertus multo majorem numerum reliquorum ecclesie suæ privilegiorum, ubi tantum de Danis, Sueonibus et Norweis aliisque septentrionalibus et occidentalibus barbaris nationibus sermo est, intactum reliquerit;—aut omnia sana, et locum hunc ex charta Hludowici I. sincera in posteras omnes emanasse statuendum est. . . ." (G. H. Pertz, Monumenta Germaniæ Historica, tom. ii., p. 765).

Mr Jón A. Hjaltalín, who "admits that the subject is not fully cleared up," adds :

"We have only to do with the three documents first mentioned. (See note 1, p. 86.) Unless a copy of the letter of Ludvig and the Bull of Gregory, of a date anterior to the times of Adalbert, can be produced, I do not see any impossibility in all the copies mentioned, the earliest of which dates from the thirteenth century, being derived from a copy falsified by Bishop Adalbert ; at any rate, if all the copies can be derived from a true one, as Dr Pertz seems to think, they can as well be derived from a false one. The Bullarium does not help us (we have only the older ones, not that of 834), as it does not state from what MS. the Bull is printed. But even if the Bull is proved true, which only can be done by producing the original, or at least a copy anterior to Bishop Adalbert, it would hardly establish the fact that Iceland was known by that name prior to its Norwegian discovery ; for many of the names mentioned in these documents, such as Gronlondon, Scridevindon, and Halsingaldia, are perverted Norwegian districts, and I should be inclined to look upon Islandon in the same way. But, in my own mind, I am perfectly satisfied that Professor Dahlmann is right in pronouncing the interpolated passages as forgeries. In this case I prefer his judgment to that of Dr Pertz, as he has proved his intimate acquaintance with the subject in his eminently critical 'History of Denmark.'"

The following quotation from La Peyrère's "Account of Iceland," dated Copenhagen, December 18, 1644, and addressed to M. de la Mothe de Vayer (Churchill's Coll., vol. ii.), is quoted because it well expresses the opinion adverse to that generally received. Mr Jón A. Hjaltalín remarks of this amusing French traveller :

"Peyrère is no authority, either in this or in other statements. He wrote what he had been able hurriedly to gather together from Arngrímur Jónsson and Bleskenius, aided by conversation with sundry learned men in Copenhagen, and he confesses that he had scarcely time to peruse the writings of 'Angrim Jonas.' Consequently his account abounds in inaccuracies and blunders. It is evident that he had never heard of the Landnámabók, as he complains of Arngrím's not stating when Kalman and other Irish settlers came to Iceland. I have also grave doubts about his Danish chronicles. Arngrímur refutes Pontanus in his 'Specimen Islandiæ Historicum ;' and Pontanus should have mentioned where he found his quotation, especially as it militates against everything that is known in the matter."

We may, however, be certain that in the following extract La Peyrère expresses the opinions popular at Copenhagen in the seventeenth century :

"*Angrim Jonas*,¹ as it seems, would not be so averse, to allow that *Iceland* is the same with the Ancient *Thule*, provided he could be convinced, that that Isle was

¹ In p. 432 (loc. cit.) we are told that *Angrim Jonas* is "erroneously call'd *Arngrim* by some"—it need hardly be said that the real name is Arngrímur Jónsson.

inhabited before the time of *Ingulph*; wherefore, tho' I have said enough upon this Head for the Satisfaction of unbyass'd Persons; yet will I not think it beyond the purpose, to alledge some undeniable Reasons for the Proof thereof, viz., That *Iseland* was Inhabited before that time. I have by me two Chronicles of *Greenland* written in *Danish*, one in Verse, the other in Prose. That written in Verse, begins with the year 770, when it says *Greenland* was first discovered. The other assures us, That the Person, that went first from *Norway* into *Greenland* pass'd through *Iseland*, and tells us, expressly, That *Iseland* was Inhabited at that time; whence it is evident, that *Iseland* was not first of all Inhabited in the year 874."

"*Angrim Jonas* will perhaps object, That my *Danish* Chronicles don't agree with that of *Iseland*, which says, That *Greenland* was not discovered till the year 982; nor inhabited till 986. But I must tell him, That my *Danish* Chronicles are founded upon the Authority of *Ansgarius*, a great Prelate, a Native of *France*, who has been acknowledged the first Apostle of the Northern World. He was made Archbishop of *Hamborough*, by *Lewis the Mild*, his Jurisdiction extended from the River *Elbe*, all over the Frozen Sea; the Emperor's Patent, constituting the said *Ansgarius* the first Archbishop of *Hamborough*, are dated in the year 834, and were confirmed by Pope *Gregory IV.*'s Bull in 835. The true Copy, both of the Patent and of the Bull, are to be seen in the 4th Book of *Pontanus* his *Danish* History of the year 834, where it is expressly said in the Patent, That the *Gates of the Gospel* are set open, and that *Jesus Christ* had been revealed both in *Iceland* and *Greenland*; for which the Emperor gives his most humble Thanks to God."

"Two Inferences are to be made from thence: First, That *Iseland* was inhabited by Christians in the year 834, and consequently 40 years before the arrival of *Ingulph* there: Secondly, That *Greenland* was inhabited by Christians in the same year, 834. Which agrees with my *Danish* Chronicle, where the first discovery of *Greenland* is fix'd to the year 770.¹ *Angrim Jonas* being put to a *nonplus*, tells us, That he questions the authority of the Bull of *Gregory IV.* alledged by *Pontanus*, which he would fain make us believe, is supposititious; but to be plain with him, I think he has taken a Notion of maintaining the Credit of his Native Country, by adhering too strictly to the Authority of its Chronicles; whereas it would have been more for his Reputation, not to have insisted so much upon that Authority, than to rob this Isle of the glory of its Antiquity; who is so ignorant, as not to know, that the Age wherein *Ingulph* lived, was not very barbarous! The *Goths* having carried the same together with their Arms throughout all *Europe*; whoever should go about to persuade me, into a Belief of all what is inserted in the Ancient Chronicles of these barbarous Ages, might as soon make me believe the

¹ Popular history, it has been seen, attributes the exploration to *Eirikr Rauf* (*Eric the Red*) in A.D. 982, some five centuries before the days of *Columbus*. Captain *Graah*, of whom more presently, speaks of a papal Bull by *Nicholas V.*, who in A.D. 1448 declares Christianity in *Greenland* to date from 600 years back, thus removing the colonisation to A.D. 848. We have ample materials for determining the exact limits of the Northmen's explorations by their precisising the length of the day. For instance, at *Vinland* the sun at the winter solstice was above the horizon from *Dagmál* (7.30 A.M.) to *Eykt* (4.30 P.M.), which gives nine hours = N. lat. 41°.

Romances of *Oger the Dane*, or the Four Sons of *Aymon*, of the Archbishop of *Turpin*, and other such like nonsensical Stories relating to the same time."

A fair collateral testimony is given by that conscientious writer, Uno Von Troil (p. 224) :

"Thus I go further back with regard to the eruptions of fire in Iceland than the common tradition among the vulgar people there, who believe that the first inhabitants of the country, whom they suppose to have been Christians and Irishmen, were so much oppressed by the Norwegian colonists, that they were forced to leave the country, to which they first set fire to revenge themselves."

And Iceland still contains many traces of its old colonists—Welsh, Hebridian, and Irish. The places occupied by the former are known by the general term *Kumbravágr*. *Arngrím Jónsson* mentions one *Kalman* from the Hebrides (*Land. II. i. 51*), who first settled in *Kalmanstunga* or "Doab" of *Kalman*, the western part of Iceland; and *Patrick* (*Patrekr Biskup, Land. I. xii. 23*), a Hebridian bishop, is known to history as having sent the materials of a chapel, which was afterwards built at the base of the *Esja* mountain; hence *Patreksfjörð* in the north-west. The signs of the Irish are most numerous,¹ and possibly they supplied "Raven *Floki*" with food during the two years which he passed in the far north. Such are *Briánn* or *Bran*, *Melkorka*, *Nial* or *Njáll*, *Konall* (*Connell*), *Kormak* and *Kjartan*, *Íraá* (*Irish River*); the *Írafell*, or *Irish fell*, in the *Kjósar Sýsla*; and the *Írabuðr*, or *Irish booths*, in the *Hvammfjörð*. Hence we can explain the fables of history which have been regarded as simple fabrications. *Geoffrey of Monmouth* makes *Prince Arthur*, in A.D. 517, subdue Iceland with an army of 60,000 men. Hence, too, another writer attributes its recovery to *Malgo*, king of Britain; whilst a third alludes to the mixture of *Finns* and *Scandinavians* before the official rediscovery of the island.²

¹ The Dictionary (iii. 780) gives forty-nine Keltic names in the *Landnámabók* only, neglecting the *Orkneyinga*, or *Iarla*, *Saga*, and the *Njála*.

² Mr *Jón A. Hjaltalín* remarks: "The large number of Irish settlers in Iceland after *Ingólf* do not prove anything concerning a previous settlement. No one denies that Iceland was visited by the Irish previous to the Norwegian discovery. No proofs, however, have been as yet brought forward to show that a settlement was made more extensive than that spoken of in *Landnámabók*, and by *Ari Fródi*. The great bulk of the settlers were Norwegians; the rest were Danes, Swedes, and Irishmen." (See *Landnámabók*; *Lambert, Ἀρχαιολογία*, fol. 137, p. 2; and *Encyclopedie des Gens du Monde*, vol. ii., p. 60.)

Within sixty years after the first settlement by the Northmen, the whole was inhabited; and, writes Uno Von Troil (p. 64), "King Harold, who did not contribute a little towards it by his tyrannical treatment of the petty kings and lords in Norway, was obliged at last to issue an order, that no one should sail to Iceland without paying four ounces of fine silver to the Crown, in order to stop those continual emigrations, which weakened his kingdom." The stock phrase of the *Landnámabók* (ii. 12, 92) is, "Fyrir ofríki Haralldar Konungs"—"For the overbearing of King Harold." But posterity has done justice to Pulchricomus, the Fair-haired Jarl, who, following the example of Egbert, brought under a single sceptre the quasi-independent reguli and heads of clans: the latter remind us of nothing more than the thousand kinglets, each with a family all kinglets, the ridiculous King Boys and King Pepples of Western Africa.

Before the tenth century had reached its half-way period, the Norwegians had fully peopled the island with not less, perhaps, than 50,000 souls. A census taken about A.D. 1100, numbered the franklins who had to pay Thing-tax at 4500, without including cotters and proletarians. The chiefs, who were also the priests, lived each upon his own "Landnám," or lot, which perhaps he had seized from another. Once more like little kings, they intermarried; they left their possessions to their families; they assigned lands to new comers; and they raised revenue from their clients and freedmen, serfs and slaves. They brought with their language and religion their customs and records; they claimed all the influence which could be commanded by strength and valour, birth and wealth; and they had no common bonds of union save race and religion. The three castes were sharply distinguished, like the four of the Hindús. The first was the Goði, priest and lord, including a rare Jarl, and Hersir (baron). The two latter, descended from *Hersir* and *Erna*, are described like our "Barbarians," as having fair hair, clear complexions, and fine piercing eyes: their duties in life were riding, hunting, and fighting. Secondly came the progeny of Afi and Amma; the Thanes, Churls, Karls, or free peasants: their florid, red-haired sons were Stiffbeard, Landholder, Husbandman, and Smith; and their daughters, Prettyface, Swanlike, Blithespeech, and Chatter-

box. Last in the list were the Thralls, begotten by Thræl, son of Ái and Edda, upon Thy: for offspring they had Plumpy, Stumpy, Frousy, Homespun, Sootyface, and Slowpace, the latter a very fruitful parent; and their daughters were Busybody, Cranefoot, Smokeynose, and Tearclout.

But Iceland was already too populous for this "leonine" state of society. In the brave old days when ancient mariners were ancient thieves, the roving islandry thröve by piracy and discovery; but the settled Udallers (Óðalsmenn) must have felt that some tie was necessary for the body politic. The Höfðingja-stjórn, or aristocratic republic, was initiated by the establishment of the Althing,¹ and by the adoption of Úlfljótt's oral law in A.D. 929-930. This annual assembly, at once legislative and judicial, was supreme over the local "Things,"² comitia or meetings which, independent of one another, and unchecked by a supreme court, could not do justice between rival nobles and franklins. With the Althing was introduced a kind of President, under whom the Icelandic commonwealth at once assumed shape and form. His title was Lögsögumaðr, or Sayer of the Law, and his functions resembled in important points the commoner, who began in A.D. 1377, to speak to (and not for) our Lower House.³

¹ Some foreigners erroneously write for Althingi, "Allthing," which would be pronounced Atl- or Adl-thing. *Al-* is from *allr*, all, the highest possible degree, e.g., *Al-máttigr*, Almighty. *All-* is right or very, e.g., *All-vitr*, right clever (Cleasby). The following is a synopsis of the most important events in the history of this famous Diet:

A.D. 965. Reform (bill) carried by Thord Gellir, who organised the courts and settled the political divisions of Iceland.

„ 1004. Institution of the Fifth Court (of Appeal).

„ 1024. Repudiation of the King of Norway's attempt to annex Iceland.

„ 1096. Tiund or tithes introduced.

„ 1117-18. The laws codified, written down, and adopted by the Althing. This code was afterwards called *Grágás*.

„ 1262-64. Submission to the King of Norway.

„ 1272. Second written code (*Járn-siða*) introduced.

„ 1280 (?). Third written code (*Jóns-bók*) introduced.

² Traces of some two hundred Things remain in the "Standing Stones" of Great Britain. Mr Dasent, from whose study of the Iceland republic (Introduction, etc., *Burnt Njal*, pp. li.-lxvii.) these lines are abridged, shows our *meeting* to be "Mót-Thing," a public gathering of the district freeholders; as *Husting* is "House-Thing," an assembly of householders. In Norway the Things were founded by Hákon, son of Harold Fair-hair, and the conquest over the Jarls was at once followed by the constitution.

³ Sir Thomas Hungerford in 1377 was the first Speaker, and Sir John Busby in 1394 was the first Speaker formally presented for royal approval. These officials were the mouth-piece of the House, and by no means so called on the *lucus-a-non-lucendo* principle.

Still Justice walked *pede claudo*. All suits were to be pled in the Thing nearest the spot where the cause of action arose, and plaintiffs perforce sought redress in the enemy's country, where violence was ready to hand. Thord Gellir, about a generation afterwards, caused the island to be divided into Quadrants, or Tetrads (Fjórðungr), and each of these to be subdivided into Thriðjungr ("ridings"), three judicial circles (Thing-sóknir), whose inhabitants were bound to appear at a common meeting. Causes were set on foot at the Spring-Thing (Vár-Thing), thence they were carried in appeal to the Quadrant-Thing (Fjórðunga-Thing), which must not be confounded with the Quadrant courts (Fjórðungsdómar) at the Althing; and, finally, if judged fit, to the Diet. Moreover, in each subdivision were established three chief temples (Höfuðhof), corresponding with our mother or parish churches, to which the most powerful Udallers holding priest-hoods (Goðorð) were appointed. We shall presently find traces of this politico-religious supremacy of the pontiff in the parson of the nineteenth century.

Thus three priesthoods made one local Thing, three local Things one Quadrant-Thing, and four Quadrant-Things one Althing,—a grand total of thirty-six tribunals recognised by the Republica. Every franklin was obliged to declare his allegiance to one of the priests, and to determine the community of which he was a member.

The next step was to separate the judicial from the legislative and executive attributes of the Diet. Hitherto there had been but one body at the Althing, the Lög-rétta,¹ combining the three functions. It now became exclusively legislative, the supreme power in the land, presided over by the Speaker, and consisting of forty-eight Goðar, who controlled all laws and licences. The judicial functions were distributed amongst the four Fjórðungs-

¹ The word is liable to misapprehension. It is used of the place as well as of the body sitting there; of the Sacred Circle (Vé-bönd) as well as of the lawmen who occupied it. Moreover, under the Commonwealth, it was the legislative session that met on the Lög-berg; and after the union with Norway it was the public court of law at the Althing considerably modified. The term is also variously derived from Rætt, a fence, a sheep-fold; or from Að rétta lög, to right (or make right) the law (Cleasby). Moreover, the Lög-berg (Hill of Laws) of the Althing was called Thing-brekka (Parliament brink, or high place) at the local assemblies.

dómar or Quadrant-courts of the chief assembly. Each of these took charge of the suits which, belonging to its division, were carried before the Althing.

Presently the State became master of the Church. The priest-hoods being limited to thirty-six, and new temples not being recognised by, nor represented in, the assembly, the old institutions would look rather to the central power than to their subjects. The Thingmen of the three established priesthoods, by the orders of the Diet, were gradually made to form one Vernal-court (Vár-Thing), and the Quadrant-Things became obsolete. Thus there was more of justice for suitors than when they were compelled to appear before a single priest and his dependants or parishioners.

The Vernal Thing, though only a tribunal of first instance from which an appeal lay, became an Althing on a small scale. Each had its Thingbrekka, or Hill of Laws, whence notices were given; its Lögmaðr,¹ lagman, or lawman, who "said" the law from memory, and its general assemblies. Each also of the three priests, who presided in turn, named three judges, after the recognised principle, "three twelves must judge all suits;" and the three arbiters were bound to be unanimous. In addition to these courts were the tribunals called Autumn Leets (Leið),² held a fortnight after the dissolution of the Diet; here the calendar of the current year, and the new laws and licences of the past Althing, were published.

Under the new system the Court of Laws contained 39 priests (3 × 12, + 3 for the Northlanders' Quadrant³); and, to counter-balance the three clerical extras, three laymen were chosen from each of the other Tetrads by the priests who represented it. Thus the whole number on the bench was 48 (39 + 9), and each

¹ Lög (*i.e.*, "laws," used only in the plural; from "lag," a lay, layer, stratum) also signified the legal community or State.

² The Anglo-Saxon Leode, probably akin to June (*ærra Liða*) and July (*æftera Liða*); the Irish Fo-leith, and our modern "leet," properly the law-court of the hundred. In the Saga times (tenth century) the Leið was a kind of county assembly; during the rule of the Grágás (twelfth and thirteenth centuries), the Leið was held where the Vár-Thing used to sit, in common with all the three Goðar of the Quarter (*Sam-leið*).

³ The Northlanders, by a provincial arrangement which the central authority hardly recognised, claimed four instead of three judicial circles (*Thing-sóknir*). The reason was, that the heads of houses east of the Eyjafjörð and west of the Skagafjörð, whose Quadrant-Things lay in the middle of the Tetrad, refused to ride so far.

of the 48 had two assessors. The Law Court, therefore, contained 144 (48 × 3) equal votes, and, including the Speaker, 145 voices. In later times the two bishops were added.

The four Quadrant Courts of the Althing (Fjórðungsdómar) each numbered thirty-six judges, named as usual by the priest out of the frequenters of his Thing: thus we find again the law of three twelves, and the total of 144. Finally, in A.D. 1004, about forty years after the institution of the four, was added the Fimtar-dómr, or Fifth (High) Court of Appeal or Cassation, suggested by Njáll Thorgeirsson, the hero of the "Nials-burning."¹

Such was the artificial and complicated system which sprung from the litigious nature of the Northern man. It was a ponderous machine for the wants of some 50,000 souls, and its civilised organisation contrasts strongly with the rude appliances by which it was carried out, the barren wart and the rough circle of "standing stones" on the hill-top where the sessions took place.

A mighty change came over the island mind when Ólafr Tryggvason (Olaf I., Trusty-son, killed during the same year at the battle of Svoldur) induced, in A.D. 1000, the Althing to accept Christianity as the national religion.² The old pagan creed had become age-decrepit. After producing the *Völuspá*, a poem, grand, noble, and ennobling in general conception, as it is beautiful and perfect in all its parts, it engendered such monstrous growths as the *Fjöllvinns-mál* (Fíolvith's Lay), a

¹ Nat. A.D. 930; converted to Christianity, 998, and murdered, 1014. Cleasby derives "Fimtar" from "Fimt," the heathen week, a pentad or five days; whilst the Swedish "Femt," a court before which one has to appear a "fimt" from the citation, seems to have floated before the minds of the founders.

² Fat and ferocious Ólafr Helgi (Olaf II., or the Saint), when succeeding to the throne of Norway, doomed to death and slavery, to exile and confiscation, all who opposed the new faith. The blood of martyred pagans was not the seed of their Church; and persecution, vigorously carried out, took, as usual, wide effect. After his death at the battle of Stikklestad, he became the tutelary saint of Norway, the "Lamb" of the calendar. His remains ranked as relics in the ancient cathedral at Throndhjem, till Protestantism, or rather Lutheranism, under Gustavus Vasa (A.D. 1527), and Christian II. (1536), replaced Romanism in the Scandinavian peninsula. The Royal Order of Norway, founded in 1847 by the late king, Oscar I., bears his name. London has boasted of four "St Olaves;" and Tooley Street of the Tailors, according to Mr Peter Cunningham, notes the site of the first church. To retain due reverence for such a "Saint," we must believe with Pliny (Epist., viii. 24): "Reverere gloriam veterem, et hanc ipsam senectutem, quæ in homine venerabilis, in uribus sacra. Sit apud te honor antiquitati, sit ingentibus factis, sit fabulis quoque."

mythological pasquinade abounding in *bizarceries*, and the Lokasenna (Loki's Altercation), all scoffs and sneers, an *epigramme moqueuse et grossière*, a kind of hyperborean *Guerre des Dieux*. The "great Sire of gods and men"¹ was dying or dead, a gloomy fate which equally awaits superhuman and human nature. The decline and fall of Odinism only repeated the religious histories of Palestine, Egypt, and India; of Greece and of Rome, whose maximum of effeteness has ever been at the period of the Christian invasion.

The faith of the Hindús, a modern people amongst whom we can best study the tenets and practices of the ancients called "classics," distinctly recognises Pantheus, the All-God.² The worshipper of Bramhá, Vishnu, and Shiva, still refers in familiar discourse to something above his triad of world-rulers; to a Paraméshwar (Chief Eshwara or Demiourgos), and to a Bhagwán or Giver of good, as if he were a Jew, a Christian, or a Moslem. Even the barbarous tribes of Africa are not without the conviction, as we see in the Nyonmo of the Gold Coast, and in the Nzambi Mupunga (Great Lord) of the Congo. But the God of ancient as of modern paganism was and is an unknown God—in fact, the UNKNOWABLE recognised by our contemporary philosophy, which seems to be returning to the natural instincts

¹ It was a classical dream which made Odin or Siggo (whence Sigtuna), and his followers the Æsir (minor gods), fly from Pompey in the days of Mithridates. It was a philological dream of Finn Magnússon's which identified Bragi with Bramhá, and the ferocious and sanguinary Odin with the moral and holy Buddha, the prototype of the Christian exemplar. The casual resemblance to the Etruscan Tina has not been more fortunate. Some one well remarks that "a man born about A. D. 333, and dying seventy-eight years old (A. D. 411), would, in respect to time, perfectly represent the personage whom the Scandinavians and the Anglo-Saxons call Odin and Woden, and who are the roots of their royal dynasties."

² This fact was not unknown to Bishop Warburton and to Lord Herbert of Cherbury. In the Egyptian hymn to Phthah we read: "Praised be thy countenance, Ruler of the World!" Ausonius thus explains the multitude of synonyms:

"Ogygia ME Bacchum vocat;
Osirin Ægyptus putat;
Mystæ Phanacen nominant;
Dionyson Indi existimant;
Romana sacra Liberum;
Arabica gens Adoneum;
Lucianus Pantheum."

Those who see in ancient myths the eternal contest of sunlight and darkness; of summer and winter, and, in the moral world, of intelligence and ignorance, will find strong confirmation in Eddaic poetry and prose.

of its childhood. Moreover, in old Scandinavia the several forms or eidola of the Deity, such as Óðin and Thor, Freyr and Njörðr, were confused as the systems of African Fetichism—a confusion indeed by no means wanting in the civilised idolatries of Assyria, of Egypt and India, of Greece and Rome, and of Mexico and Peru, the New World representatives of our “classical regions.”

Curious to observe, however, the pagans had, like the modern Gaboons, a form of baptism, water being probably the symbol of the Urðar-brunnr (Weird or Fate-fount), and a regular system of national expiation (Sónar-blót), annually performed by prince-pontiff and lieges.

Presently Christianity came with its offer of a personal God, an anthropomorphous Creator who, having made the creature after His own image, was refashioned by the creature; and the change from vagueness to distinctness perfectly suited the spirit of the age. Yet, in Iceland, Thor¹ died hard because he was essentially an Icelander; blunt, hot-headed, of few words and of many blows. The red-bearded one was not to be abolished at once; “they called Paul Odin, but Barnabas they called Thor:” the latter was long invoked by the traveller and the soldier before deeds of “derring do;” whilst Jesus was prayed to in matters of charity and beneficence. “Hast thou heard,” said the mother of Ref the Skáld, “how Thor challenged Christ to single combat, and how He did not dare to fight Thor?” We find the same phenomenon in the modern faith of the Persian, who adores Allah, and who reveres Mohammed and Ali, whilst he looks back with regret upon the goodly days when his Persian deities, the gods and demi-gods of Guebrism, gloriously ruled the land of Iran.

The transition from the turbulent and sanguinary Odinic system, with its Paradise of war and wassail, to a religion based upon

¹ Properly written Thórr, a congener of the Mæso-Gothic Thunra, the Thunder-god who named our Thursday. Whilst his golden-haired wife, Sif, who represented mother earth, with her sheaves of ripe grain, and the sanctity of wedlock and the family, is wholly forgotten, this terrigenous deity still lives, as we shall see, in modern Icelandic names. It is usually said that Iceland, following Norway, preferred Thórr, whilst the Danes paid the highest honours to Odin, and the Swedes to Freya (Venus), or rather to Freyr, her brother, the sun-god, who presided over the seasons and bestowed peace, fertility, and riches.

mildness and mercy could not fail to bear notable fruit. The blithe gods who built Miðgarð vanished in the glooms of the sad "School of Galilee." Of the extreme craft and cruelty, the racial characteristics of the old Scandinavian, only the craft remained. A nation of human sacrificers now cannot bear to see a criminal hanged—he must be sent for execution to Copenhagen. The new faith, also, was adverse to the spirit of a free people: it preached over-regard for human life, and it taught fighting men *propter vitam vivendi perdere causas*. It weighed heavily upon the "secret and profound spring of society," as Ozanam describes the laws of honour in man, "which is nothing but the independence and inviolability of the human conscience, superior to all powers, all tyrannies, and all external force."¹ In fact, we may repeat in Iceland what Montalembert (*The Monks of the West*, p. 252) said of the ex-mistress of the world: "There is something more surprising and sadder still" (than all its pagan cruelty and corruption) "in the Roman Empire after it became Christian."

The first school, founded about the middle of the eleventh century, began to divert the national mind from arms and raids to art and literature. The Eddas and Sagas were committed to writing; and the Augustan age extended during the two following centuries, ending with the fourteenth. The islanders gave their own names, many of them very uncouth, to the festivals of the Church. Saints arose in the land. The best known to local fame was Bishop Thorlák (Thorlaciús) Thorhallsson, who died in A.D. 1193. Though uncanonised, he was honoured by the dedication of a church at Mikligarð (the Great Fence), or Constantinople, for the use of the Waring² Janissaries. The *vigne du Seigneur* was split into two bishoprics, Skálholt (A.D. 1057), and Hólar (A.D. 1107). Hospitals were endowed, and no less than nine monasteries and nunneries were founded by the regular canons (Augustines), and by their most estimable brethren the Benedictines, whose annals command all our respect.³

¹ The reader may remember, in the late Rev. Frederick Robertson's *Lectures to Working Men*, a fine passage upon the same subject.

² *Varingi* (plur. *-jar*) *Warings*, or the name of the Scandinavian and Anglo-Saxon warriors serving as bodyguards to the Emperors of Constantinople.

³ Of the monks proper (Icel. *Múnkr*, = *μοναχός*, *monachus*), only Benedictines

The following is a list of the religious houses built in Iceland :

The foreign Bishop Rudolph (ob. 1052) established the first monastery in Iceland in Bær, Borgarfjörð. It never had any abbot, and soon disappeared.

Bishop Magnús Einarsson (ob. 1148) bought the greatest part of the Vestmannacyjar, and began to build a monastery there; after his death the institution came to nothing.

A monastery was instituted in Hftardalr (circa 1166), but was dissolved before the year 1270. During its existence it had five abbots.

Jón Loftsson, the grandson of Sæmundr Fróði, built a house and a church at his estate Keldur (circa 1190), which he intended for a monastery; but owing to some quarrels with the bishop of Skálholt, it never was consecrated nor dedicated to its intended purpose.

Bishop Brandr of Hólar instituted a monastery in Saurbær in Eyjafjörð (circa 1200). It had two abbots, but it is never mentioned after the year 1212.

Of the monasteries permanently established, the earliest was

THINGEYRAKLAUSTR.

Shortly after the installation of Jón Ögmundsson (1106) as bishop of Hólar, the season was so severe that no growth appeared when the people were assembled at the spring meeting (Vár-Thing, about the end of May) in Thingeyrar. The bishop made a vow to erect a monastery at the place, for monks of the Order of St Benedict. Soon after this there was a favourable change in the weather. It was not, however, until 1188 that the Benedictine monks fixed their abode there. The monks of Thingeyrar were celebrated for their learning, and several illustrious names are to be found among its abbots, *e.g.*, Karl (ob. 1212), Oddr (ob. circa 1200), Gunnlaugr (ob. 1218), and many others. The twenty-third and last of the series died 1561.

MUNKATHVERÁRKLAUSTUR.

This monastery, famous for its old documents, was founded by Bishop Björn Gilsson of Hólar in A.D. 1155. Its monks also were Benedictines. The twenty-fifth of its abbots embraced Lutheranism in A.D. 1551.

THYKKVABÆARKLAUSTUR.

This monastery is also called the monastery in Ver or Áltaver. It was founded by one Thorkell Geirason, by the authority of Bishop Klængur Thorsteinsson of Skálholt, in A.D. 1168. Its tenants were under the rule of St Augustine. The nineteenth and last abbot of this monastery went to Copenhagen in 1550, and was there converted to the Lutheran persuasion. This house had a famous library.

FLATEYAR—HELGAFELLSKLAUSTUR.

Bishop Klængur Thorsteinsson of Skálholt instituted a monastery in the island Flatey, in Breiðfjörð, in 1172. His successor, St Thorlákr, removed it to

were found in Iceland. They were accompanied by the regular canons of St Augustine. There were no "brothers" (*fratres*) or religious mendicants, as Dominicans and Franciscans; nor "regular clerks," as Jesuits, Theatines, *etc.*, who date since the sixteenth century; nor secular priests united in congregations like Oratorians and Lazarists.

Helgafell, and dedicated it to St John. Its tenants followed the rule of St Augustine. The twenty-fifth and last abbot died shortly before 1550.

VIÖEYARKLAUSTUR.

Founded by Thorvaldr Gissurarson, the father of Earl Gissur, and consecrated by his brother, Bishop Magnús of Skálholt, in the year 1226. Its tenants followed the rule of St Augustine. The eighteenth and last abbot embraced Lutheranism, and died in A.D. 1568. Earl Gissur here ended his days.

There were two priories in the island, viz. :

MÖRUVALLAKLAUSTR.

Instituted by Bishop Jörund of Hólar in A.D. 1296. Its monks were Augustines. Seven of its priors are known, and the last died in 1546.

SKRIÖUKLAUSTR.

Instituted towards the end of the fifteenth century. It only had four priors, who, it seems, followed the rule of St Augustine.

There were two nunneries :

KYRKJUBÆARKLAUSTR.

Founded by one Bjarnharðr, at the application of Bishop Klængur of Skálholt, and consecrated by him in A.D. 1186, on condition that its occupants should be nuns following the rules of St Benedict. The names of twelve of its abbesses are recorded.

REYNISTAÖARKLAUSTR.

Founded by Bishop Jörund of Hólar in 1296. The sisters followed the rules of St Benedict. Ten of its abbesses are mentioned, and the last died in 1562.

The Skálds, or bards, who probably long retained their old paganism in new Christianity, distinguished themselves by word and deed in every northern court of Europe, and wandered as far as the Mediterranean shores. But the heart of the people was dying, and the national spirit had fled, never more to be revived. In A.D. 1024, the Althing bravely refused all connection with Norway. But, presently, the clergy, spiritually subject to foreign sees,—Bremen, Scania, and Thronhjem,—listened to the voice of the annexor, and thus traitors divided the island camp. They fostered jealousies between rival Udallers, whose implacable hatreds and blood-feuds converted the annals, like those of the Anglo-Saxons, into records of rapine and murder. The Althing shortly after A.D. 1004 had abolished the duello, a northern institution unknown to classic Greece and Rome; or rather, let us say, it abolished itself, when “trial by point and edge” had lost its old significance as a formal and religious appeal to that God of Battles who defends the right. The Court

of Justice took the place of the Hólm-gang; and at times it was silent in the presence of the sword and the firebrand, which, in riotous frays, spared neither sex nor age. But gradually it developed every form of chicanery and law-devilry, in whose dark labyrinths it is hard to see any improvement upon the "wild justice of revenge." Its arts were jury-challenging; demurrers aided by the jealousy of the judges, whose duty was to catch a man tripping; the detection of flaws; attempts to split the court (að vèfingja dóminn) and cause non-suits; false witness and the breaking of oaths those "sports of brave men and terrors of fools." The law was made bankrupt by the tricks of irrelevancy and by-play, by the special pleading, by the quibbling, the bribery, and the corruption of the tribunals. When all failed, a petty massacre was sure to succeed; and as these proceedings arose from the captious litigiousness of the race, so they long maintained the grievous trammels and shackles of so called legal principles.¹

Thus in the middle of the thirteenth century, Hakon V., king of Norway (reg. A.D. 1217-1264), was able openly to treat for the surrender of Iceland liberty. After some three hundred years of Udallism, the heroic island passed into foreign dominion by a decree of the Althing under "Catillus," or "Catullus" (Kettill) the last of the independent law-sayers or presidents. Modern Icelanders, copied by strangers, stoutly and patriotically maintain that the relation of the two countries was an alliance, a personal union, rather than a real union, or *à priori* a subjection. It is certain that treaties were formally exchanged; that the ancient laws and rights of property were secured; that free commerce was stipulated; that Icelanders were made eligible to hold office in Norway; and that any infringement of condition dispensed with the incorporation. But the hard facts remain that a poll-tax, a tribute of sixteen ells of homespun cloth, was imposed, and that a viceroy was appointed to govern the island. Thus Liberty was palsied, and Independence gave place to the *status pupillaris*. To dispute upon this independent allegiance is only to debate a question of degree.

¹ As will be seen, modern law recognises, or rather compels, an official arbitration before causes can be brought into court.

The eighth and last of the Crusades, movements which began in A.D. 1188-1190, and ended in A.D. 1260-1275, was the first preached in Iceland (Hist. Eccles., i. 571), and it partially aroused the islandry from their apathy and habitual law-contests. But the effects were transient, save upon individuals. The physical history of the thirteenth century is chiefly remarkable for the widespread ruin caused by its terrible eruptions and desolating earthquakes. Now began the epidemics and epizootics which, from A.D. 1306 to A.D. 1846, number 134—viz., seven in the fourteenth, six in the fifteenth, twelve in the sixteenth, twenty-eight in the seventeenth, and forty-one in the eighteenth centuries, with several during the present. An unreformed pagan would have believed that the wrath of the olden gods weighed heavy on the land.

The same may be said of the fourteenth century, which also witnessed the calamitous annexation to Denmark.¹ After the death of Knut (Canute) in A.D. 1035, Magnús ascended the throne of Norway, and native sovereigns ruled till A.D. 1319, when the male line became extinct with Hakon VII. The Diet enthroned his daughter's infant son, Magnús Eiriksson, who, being already king of Sweden, had brought the Scandinavian peninsula and its dependencies under a single sceptre. But the union did not last. Magnús bestowed Norway upon his son Hákon, who was married to Margaret, sole daughter of Waldemar III., king of Denmark. The issue, Ólafr IV., succeeded to the throne of his grandfather in A.D. 1376, and to that of his father four years afterwards, thus incorporating Norway with Denmark. Dying a minor in A.D. 1387, he left both kingdoms to his mother, Margaret, by whose energetic rule the regency had been carried on, and she found no difficulty in setting aside the feeble pretensions of Albert of Mecklenburg. In A.D. 1397 the union or treaty of Calmar took place, and Iceland, which still maintained its modicum of independence, was once more trans-

¹ The author would by no means make the invidious assertion that the Danish treatment of colonies was worse than that of other contemporary nations. On the contrary, in Africa, India, and the West Indian Islands, it has been a favourable contrast to most of the rest. But Europe in the fourteenth century, and in the ages which followed it, presents a melancholy contrast with the refined and civilised usage of her settlements by Republican and Imperial Rome.

ferred without opposition to the triple crown of Denmark, Norway, and Sweden. The conditions of the annexation to Norway (A.D. 1264) were tacitly consented to by the Danish rulers when they succeeded to Iceland by marriage and inheritance. Yet "the Semiramis of the north" began by the usual contempt of stipulations: she repaid submission by perpetuating a poll-tax of half-a-mark per head, and, worse still, by establishing a royal monopoly of trade. The latter, confined to vessels licensed by the Crown, nearly secured for Iceland the fate which befell the lost colonies of Greenland. From this period till A.D. 1814, Denmark and Norway remained united, each, however, governed by its own laws.

The fifteenth century was as disastrous as that which preceded it. The Digerdoed, or Black Death, the Plague of the Decameron, had raged with prodigious violence about A.D. 1348, and it was followed by a winter which, destroying nearly all the cattle, left a purely pastoral country permanently upon the verge of utter ruin. A second pestilence, the Svarti Dauði, or Black Death, visited the hapless island; whilst English and other pirates, plundering and burning on the main, fortified themselves in the Vestmannaeyjar archipelago, despoiled the churches and farms of the coast, held the franklins to ransom, and sold the poor into slavery. And at last, in the middle of the sixteenth century, came the crowning blow, the introduction of Lutheranism.

Catholicism had sat lightly upon the remote spot verging on the hyperborean seas. The papal tithe (Páfa tíund) and Peter's Pence, imposed in A.D. 1305 by the king of Norway under pain of excommunication,¹ did not weigh heavy. At first the tax was one nagli (nail), or tenth of an ell, of Wadmál (Vað-mál) cloth, its equivalent being two fishes; and it never rose higher than ten ells of homespun per adult male. The sale of Indulgences, which accompanied the last and first crusade, was abolished in A.D. 1289. Celibacy of the clergy was introduced in Iceland by Thorlák Thorhallsson, who died in the quasi-odour of sanctity in 1193. After that date ecclesiastics were not form-

¹ Of this process there were two forms, which began to be passed (circa) A.D. 1180. Bann, or Meira Bann was E. Major; Minna Bann was E. Minor, whilst the interdict was called For-boð, the German Verbot.

ally married, but were not debarred from living with Frillur, or Fryllas, concubines, then generally called by the laity "holy women." As in Charlemagne's day, bigamy was not wholly unknown. A few took second wives, "*non libidine, sed ob nobilitatem*;" but the fierce temper of the Húsfreyja, or *mater-familias*, must have made the arrangement uncomfortable. Thus it is said¹ Snorri Sturluson in A.D. 1212 married the daughter of Deacon Loptsson, who had a harem of concubines, one the child of a bishop. Jón Geirriksson, the Dane, popularly written "John Jerechini," bishop of Skálholt, in A.D. 1430, is also accused of being a buccaneer, a mere brigand, who could not write his name, which little drawback, however, did not prevent an attempt to canonise him after he was deservedly (?) lynched in A.D. 1433. Jón Arason, bishop of Hólar, is charged with keeping a mistress at the age of eighty.² But much of this may be sectarian exagger-

¹ This prudential reservation is the more necessary as most of our information comes from the enemy. Bishop Jón Ógmundsson had two wives, not at the same time, but one after another.

² "In the sixteenth century the Reformation was forced upon the people by the united kingdoms of Denmark and Norway; its progress was everywhere marked by blood, and even the Lutheran historian, Finn Jónsson, is unable to veil completely the atrocities which were committed. The venerable bishop of Hólar, Jón Arason (*sic*, doubtless a clerical error), the last Catholic prelate, received the crown of martyrdom along with his two sons, uttering with his dying breath, 'Lord, into Thy hands I commend my spirit!'" Thus writes Baring-Gould (*Introduction*, xl.). Mr Jón A. Hjaltalín hereupon observes: "I must call attention to this quotation from Mr Baring-Gould regarding the introduction of the Reformation into Iceland. I cannot protest too strongly against it. *It is utterly false from beginning to end.* Every one who has the slightest acquaintance with the history of Iceland during the sixteenth century knows that Lutheranism was *not* forced upon the Icelanders. The Reformation movement was only encouraged by the king of Denmark. Old men, Bishop Jón Arason among others, were permitted to retain their former faith if they were willing to leave others equally undisturbed in the exercises of their religion. This fact is corroborated by the bishop's immediate descendants, who in everything glorified their ancestor as a martyr. Further, it cannot be shown that a single person lost his life in Iceland in connection with the introduction of the Reformation. The quarrel which led to the death of the bishop and his two sons arose from a dispute about the sale and occupation of a farm in the west. Bishop Jón Arason was an exact counterpart of the chiefs of the Sturlunga times; he delighted to ride about the island with hundreds of followers, and to engage in fights and broils with every one who had any property to lose. That it was not religious zeal that devoured him or his sons may be seen from the fact, that in a letter to the chancellor of the king of Denmark (dated 10th August 1550) they say that 'their father the bishop, as well as themselves, are ready to keep the holy *Évangelium*, as His Majesty has ordered it to be preached everywhere in Iceland.' There is all probability that they would have come to an untimely end even if there had been no Reformation. The king had indeed ordered their arrest as disturbers of the public peace. He did not, however, order their execution. The responsibility for that act must rest upon the Icelanders who seized them, and mistrusted their ability to keep them in safe custody

ation, and in after-ages Protestant authors would not inquire too curiously if, as often happens in the present day, the priest was married before he was ordained. And, although we are told that a frequent entry at Councils was "Quoniam Dominus A. Episcopus scribere nescit, ideo ejus loco subscripsit, B.C."—which reminds us of many nobles and gentles who could "nocht writ" in Scotland,—we must not forget that, in the thirteenth century the Augustines attempted a vernacular translation of the Bible.

Thus all the glow of faith and the fervid belief in the deifications of the family, in saints and martyrs raised above mortal estate by supererogatory piety and virtue, and in the living and breathing *locum tenens* of the first apostle, was darkened by a system of semi-rationalism, which allows reason too much and too little scope; which arrogates to itself the unreasonable right of saying "Thus far shalt thou go and no farther," at the same time loudly professing its own fallibility; and which has succeeded fatally well in splitting the Church into a thousand fragments. A philosopher might have forecast the result from his study. Men unwilling to believe were relieved of a great load, and their energetic action was no match for the passive resistance of the many honest and pious souls who embraced the new form of faith. The Crown laid violent hands, as in England, upon the "Regalia Sancti Petri" (temporalities), which it transferred to its favourites; the religious houses were secularised, and the ecclesiastics had the choice either of banishment, or of conforming to what they held the teachings of heresiarch.

Changes of religion seem to have been peculiarly unfortunate

until they could be brought before the proper tribunal. So far from any one losing his life through the introduction of the Reformation, no one was even deprived of his liberty for a single hour except by Bishop Arason and his sons. I hope it was through crass ignorance only that Mr Baring-Gould penned such an extraordinary statement as the one quoted. Or is he able to name the people who suffered during the introduction of the Reformation, and to show trustworthy documents that they did thus suffer?"

¹ Charges of national ignorance are favourites with the ignorant, and unhappy not only with them: the analphabetic state of Spain is pressed into active service by the English home littérateur, especially of the Evangelical or Low Church school. It sounds strange to one who has often met upon the outer bridle-paths men mounted on their mules, and diligently reading books and newspapers. A superior civilisation of the Latin race is hardly to be measured by the "R's,"² or by similar mechanical appliances.

in Iceland. The seventeenth century saw absolute monarchism extend from Denmark under Frederick III. to her distant dependency. Encouraged by the apathy and indolence of the islanders, the foreign pirates, English and French, redoubled their exertions; even the Algerines made a successful raid. The seventeenth century showed the epidemic of superstition which distinguished the descendants of the Pilgrim Fathers; an ignorant and fanatical interpretation of Jewish history caused the torturing and burning of many a witch and wizard, who probably were often only natural media, and mesmerisers or odylic sensitives. The eighteenth century (A.D. 1707) began with the small-pox, which killed 16,000 to 18,000 of the 50,000 islanders. In A.D. 1759, rigorous winters brought on a famine equally fatal to man and beast; of the former some 10,000 perished. In 1762 about 280,000 sheep died, or were slaughtered. In A.D. 1788 took place that first eruption of the Skaptárjökull, which has been described as the most appalling and destructive since authentic history began.

About the beginning of the present century, Iceland, under physical evils, monopoly, and misrule, fell to its lowest point. Greatly to the displeasure of the lieges, the two sees were reduced to one; the same took place with the colleges, and finally the Althing was abolished (A.D. 1800). The war between Great Britain and Denmark would inevitably have caused actual starvation, but for a humane order in council,¹ through the interest of Sir Joseph Banks, permitting the island to be supplied with the necessaries of life. In A.D. 1843, brighter days dawned. After a disuse of nearly half a century, the Althing was re-established; but it was only a shadow of its former self—a body of representatives whom the Home Government deigned to consult. Still, it roused the people to take interest in their own affairs. Finally, the proclamation of a constitution for Denmark (1848) produced effects which now are being matured.

The benefits of free and popular rule were offered by the Danish Government to Iceland. But the offer was based upon the supposition, indignantly repudiated in the island, that she was

¹ The document is quoted *in extenso* by Henderson (ii. 164-166), and by Baring-Gould (Introduction, pp. xlv., xlvi.).

subject to the Rigsdag;¹ and it was repeatedly refused, as falling short of the royal promise made in 1848. Hence arose the Radical party, whose extreme left, though disclaiming the idea of separation, is distinctly republican. The author has compared it with the Home Rule movement in Ireland, warning his readers, however, that there are salient points of difference; while the absence of social and religious complications is all in favour of the Scandinavian. The head of the party was and is the highly distinguished scholar Hr Jón Sigurðsson; there is none beside him, but “proximè accesserunt” Ex-Justice Benidikt Sveinsson, Professor Haldór Friðriksson, Rev. Eiríkr Kuld, and Jón Sigurðsson of Gautlönd, a farmer in the north. They complained that the king, whose rule at home was limited by the Chambers, remained absolute in Iceland; that the constitution did not place them on an equal footing with their fellow-subjects; that they were governed by men living in Copenhagen, who knew little of local requirements, and of a *doctrinaire* clique which has done abundant harm. They described paternal rule as equivalent to the rule of red tape; they distrusted the Danes even *dona ferentes*, and they declared that there is still “something rotten” in a certain state. It was, indeed, evident that the national Liberal party of Denmark, with the usual liberality of “Liberals,” aimed only at subjecting their Icelandic fellow-subjects.

In vain the ministers of Frederick VII. offered what appeared to the outer world the fairest terms—the establishment of an Upper and a Lower House, and a settlement of all claims by a

¹ The Icelanders' view of the connection between their country and Denmark is simply this: They declare the union, dating from 1264, and renewed in 1380, to be personal, not real, and limited to both countries being under the same king. The Rigsdag cannot therefore legislate for the Althing, and the constitutional law of Denmark has never become that of Iceland. They consequently demand that the Althing should have legislative and not mere counselling powers; that it should sanction in the island the laws proposed by the Danes; and that the minister who advises the Crown in Icelandic matters should be responsible to this Diet. On the other hand, Denmark denies the validity of mediæval treaties, the relations of the mother country and her dependency having been completely altered by historical events; consequently Iceland is now an integral and inseparable part of the Danish kingdom, and the laws of Denmark must be valid in Iceland as in the other colonies. Iceland, they say, cannot claim any self-rule as a right; still, it may be desirable, on account of their peculiar circumstances, to allow the Icelanders a voice in the management of their own affairs, subject, however, to the supervision and consent of the Rigsdag and the Home Government.

perpetual allowance of \$60,000 per annum.¹ The Home-Rulers "totted up" all that the Danes *stole*, such is the mild word used,² from chalice to landed estate, with interest, simple and compound, for the last three centuries. These pretensions exceeded those of the United States in the Alabama affair: everything was placed to the debit of Denmark, nothing to her credit. But Hr Sigurðsson, the opposition leader, sensibly said, "The money claims are the most awkward to the Liberals, and pressing them is the best lever when moving for self-government." The Danes laughed at the idea of holding a constitutional country liable for the debts of absolute kings, contracted in A.D. 1550-1800, when Denmark herself was plundered, as well as Iceland, by irresponsible rulers. There was, however, this difference, that while Iceland was plundered to enrich Danes residing in Denmark, Denmark was plundered to enrich her own citizens. And Hr Sigurðsson was fated to win. Important events have happened since the author left the island. A public meeting, attended by delegates from every district, was held (June 26, 1873) at Thingvellir. Here it was resolved to use every effort either to end Danish rule in Iceland, or to obtain an extended constitution which should give the island a government of her own. Correspondents assured the writer that the movement passed off without undue excitement. "Hereditary bondsmen," know in those days that no physical blow need be struck, and that "every institution," to use the words of a well-known separatist, "can be modified or destroyed by the weapon of agitation, under the guidance of popular opinion."

At this preliminary to the opening of the Althing it was decided to send three delegates to Denmark, and to submit to the ministry a draft constitution, drawn up with the view of developing the island and its inhabitants. The two principal provisions were (1.) That Iceland should be connected with the home country by a "personal union only;" and (2.) That it should be governed

¹ It is popularly asserted that the Danish Government contributes \$30,000 per annum for the support of Iceland. Upon this subject, see note at end of the present section.

² The author tried in vain to see the wording of the "little bill," and was assured that it had not been printed. It appeared in the *Allgemeine Zeitung*, Nos. 66, 84, 85, 101, and 102, of the 7th, 25th, and 26th March, and 11th and 12th April 1870. The article is entitled "Island und Dänemark," and is written by the historian Professor Konrad Maurer of Munich. See note at end.

by a Jarl, earl, or viceroy, with a minister or ministers responsible to the House of Representatives.

After the close of the meeting the Althing assembled at the usual place. Some of the more advanced kept, it is said, their seats when the usual cheers were given for the king; but no disloyal manifestation was made beyond rejecting almost all the bills brought in by the local government. The draft constitution was referred to a committee, which on July 23, 1873, reported in its favour, and added a resolution that the king should be requested to concede the following temporary arrangements as soon as possible, and not later than the next year:

1. That the Althing be at once invested with full legislative powers, and a new budget be submitted for its approval once in every two years, on the principle that no tax or impost shall be levied in Iceland for defraying expenditure incurred by the Danish Government.

2. That a special minister be appointed for Icelandic affairs and that he be responsible to the Althing.

3. That this arrangement be valid for six years only, after which the entire constitution shall be laid before the Althing for its consideration.

On January 5th, 1874, after a struggle of thirty years, the new Icelandic constitution was signed by the king, and came into force on August 1st of the same year, the millenary festival commemorating the occupation of the Northmen. The original plan of the two houses has been carried out. The biennial Althing will consist of thirty members voted in by the people, and of six nominated by the Crown. The Upper House will contain the six royal nominees, and six others elected by the general body of the Althing from its members, duly returned by their constituencies while the Lower House will number the remaining twenty-four. The vote is confirmed to officials, to ecclesiastics of every grade to all university graduates, and even to students who sign themselves "Candidat" (B.A.). It is extended to citizens who lease farms, to those who pay a minimum of eight crowns a year in government taxes, and to the country people that contribute either cess or parish rates—evidently universal suffrage, excluding only women and minors, paupers and criminals. Every vote

must be twenty-five years old, and of unblemished character; and he must have resided at least a twelvemonth in his electoral district. Any person who has a right to the franchise, who is thirty years of age, who has been domiciled in Iceland or Denmark for five years, and who is not in the employment of a foreign state, is qualified for election to the Althing. The session may not outlast six weeks without special royal assent, and provisions are made for extraordinary sessions.

The new constitution, which purports to regulate only home affairs, is a distinct improvement upon the old platform. The Secretary for Iceland is independent of the Danish Cabinet and Rigsdag, and becomes responsible to the king and to the Althing. This minister will be answerable for the maintenance of the constitution, and he will nominate for royal approval the chief local functionary. The governor's functions will be determined by his majesty, and constitutional complaints against him will be investigated by the Crown. Thus the Althing will enjoy certain legislative rights, and have some control over the administration of its country. Finally, as Iceland has no representative in the Rigsdag, and as she has never taken part in the legislature, nor in the general government of the empire, she will not contribute to the home expenditure.¹

But the power of passing laws is not granted absolutely; it is subject to royal confirmation. The relative position of the Secretary for Iceland to the people, represented by the Althing, remains to be defined. Even less satisfactory are the arrangements concerning the local governor; his power and duties are not settled, and the Althing will have no voice in settling them. Hitherto he has mostly acted as a mere channel of communication between the island and the Copenhagen Cabinet, and the new constitution does nothing to remedy this evil. On the contrary, the king makes a special reservation concerning the expenses of the "highest local government of the island," meaning that the governor's salary will be dependent upon the Crown, and will not be discussed by the Althing with the rest of the budget. Thus the ruler becomes wholly independ-

¹ *Cela va sans dire*; for many years the island has been too poor to pay for the expenses of governing it. But see note at end of section.

ent of the ruled, and dependent only on the Secretary for Iceland. Again, the nomination of six members by the king will have the effect, in case of disagreement between the Upper and Lower Houses, of enabling the royal commissioners to frustrate legislation simply by absenting themselves from the debate. This is perhaps the weakest point of the new constitution; it may be necessary in Denmark where the tone of the middle classes is distinctly democratic and republican, but it is looked upon and is protested against in aristocratic and conservative Iceland as an affront to their loyalty. And it can serve for nothing but to create an artificial opposition and to strengthen any minister or governor in anti-national or Danish measures. The provision that the governor may sit in the Althing and speak as often as he pleases, is distinctly unconstitutional; nor is the paragraph concerning the fixed contribution and the sinking contribution at all satisfactory.

The author ventures to predict, with due diffidence, that however liberal this constitution may appear, it will not satisfy local requirements—it grants too much or it gives too little. The next demand will be for the governor to be invested with the full powers residing in the heads of British colonies supported by a local ministry, the latter virtually independent of the Home Colonial Minister. Denmark is, perhaps, not yet sufficiently advanced in political education to grant the gift yet the experiment is worth trying. If the demand be rejected the persuasion that Iceland has never thriven since Icelanders lost their privilege of self-rule will steadily increase, and probably attain abnormal dimensions. A school of politics has now been opened to the people, and the new study will produce special students. Irrepressible malcontents, *intransigentes*, and irreconcilables, who have trodden the path of separation, are never easily brought back to the sleepy old highway of routine rule; and the constitution has provided them with many grievances, especially the doubts cast upon Icelandic loyalty and good faith. There are not a few European revolutionists who, urgent for the general derangement of affairs, will hardly disdain to “keep their hands in,” even so far north. An Icelanders in England flatly contradicted the assertion that :

republican or separatist feeling exists in Iceland.¹ The "great public meeting" of 1873 expressed the latter, and what could a separated Iceland be or become except a republic? Not only "subversive philanthropists" but well-meaning and patriotic men will find subjection to a foreign secretary and a foreign governor intolerable when they wish to manage themselves. The "little bill" will still be a strong lever for raising popular passions. In the days when Ireland continues to "write and speak of '98," when Norway "strikes" as heavily as Great Britain, and when the Socialists breed troubles in Denmark where the International has been interdicted by the courts of justice, as a branch of the English society, the Icelandic Home Ruler is not likely to sit still—perhaps it is not desirable that he should.

Since the unhappy Dano-Prussian war we have heard little of Scandinavia in England, and we are apt to conclude that the Pan-Scandinavian idea is dead. It is not dead but sleeping; and while Pan-Slavism affects to slumber that it may gather vigour and energy for decisive movements when the time for action comes, we still live in hopes of seeing a federal union of the great northern kingdoms, and to find Iceland taking her place as a minor but not an undistinguished member of the family. Scandinavian liberty, says Montesquieu, *est la mère des libertés de l'Europe*, and her free-born children have not lost and will never lose respect for the parent.

NOTE TO SECTION III.

Since these lines were written, Christian IX., the first crowned head that ever sighted her shores, has visited Iceland upon the well-chosen occasion of her millenary festival. The courteous and parental bearing of the king has made its due impression. The lieges have taken a sensible view of the situation; they spoke in a conciliatory spirit, and satisfaction with the change from the former state of things seems to have been general. Even the anti-government party is thankful for what it has won,

¹ Hr Eiríkr Magnússon in the *Standard* of December 1, 1872, et seq.

and hopes in course of time to win what it wants. "This is a good beginning," said a prominent member, "and, since we have got legislative powers, it is our own fault if we cannot get more."

The following statement was sent to me by Mr Jón A. Hjaltalín, who is responsible for his assertions. The paper thoroughly expresses the Icelanders' view of their financial relations with the Danish Government:

"The budget of Iceland for 1867-68 was:

REVENUE.		EXPENDITURE.
\$48,345 21 sk.		\$79,682 56 sk.
	1868-69.	
\$44,675 21 sk.		\$63,929 8 sk.
	1869-70.	
\$51,222 21 sk.		\$77,361 24 sk.
	1870-71.	
\$44,787 21 sk.		\$65,865 72 sk.

"This is the Danish statement of the annual budget for Iceland. Consequently it has been commonly said by Danes and travellers who have not been able to dive below the surface, that Iceland was the receiver of Danish bounty to the tune of something like \$30,000 annually. It was, however, acknowledged by the Danish Chancellor of the Exchequer in 1845 that such was not the case, for in his report he said: 'It is perhaps doubtful whether we really contribute anything towards the support of Iceland. . . . It is true, certainly, that an annual sum is paid to the Icelandic treasury. . . . This payment cannot, however, properly be called a subsidy, because *the whole of the Icelandic revenues has not been paid into the Icelandic treasury* (but into the Danish treasury). . . . *The Icelandic treasury has also disbursed several sums* (at the command of the Danish Government), *which cannot be set down as expenses for Iceland.*' This is the gist of the whole dispute. Sums are not entered on the credit side of the Icelandic budget which Iceland has really paid into the Danish treasury. Thus an annual deficit is easily made out.

"Down to the middle of the last century the accounts of Iceland were kept clear and separate from those of Denmark. Then the Icelandic budget showed an annual surplus which found its way into the Danish treasury. After that date, the accounts of both were mixed up together, and for three quarters of a century (till 1825) the annual revenue and expenditure of Iceland cannot be properly ascertained. It is, however, known that several large sums, above the annual revenues of the island, were paid into the Danish treasury during this period. On the other hand, it cannot be shown that the annual expenses had risen above the former yearly average. When a separate account was again opened with Iceland, no notice was taken of the extraordinary sums paid into the Danish treasury on behalf of Iceland.

"To show the reader the chief items of the Icelandic budget, we will take the budget for 1870-71:

REVENUE.	EXPENDITURE.
I. From the trade, \$12,600 0	I. Expenses of the administration and medical staff of Iceland, . \$34,653 0
II. ,, Crown property, . 12,080 0	II. Expenses of the bishop and the educational establishments, . 27,212 72 sk.
III. ,, Royal tithes, 3,750 0	III. Sundries, . 4,000 0
IV. ,, Repayment of loans, . 8,192 15 sk.	
V. ,, Sundries, 8,165 6	
VI. Deficit, . . 21,078 51	
<u>\$65,865 72 sk.</u>	<u>\$65,865 72 sk.</u>

"It will be seen from the above that one of the chief items in the Iceland revenues is derived from Crown property in the island, which in round numbers now amounts to \$12,000. This is entered in the annual budget to the credit of Iceland. In 1866, \$175,037 had been paid into the Danish treasury for Crown property sold in Iceland at different times. Neither this sum nor its interest is, however, mentioned in the annual statements of Icelandic finances. But if Iceland has a right to the revenues derived from the Crown property still unsold, it has an equal right to the interest of the money paid for that which is sold. This sum, amounting to about \$7000, ought to be added to the annual revenue, thus making the annual income from the Crown property \$19,000 instead of \$12,000. There are also several smaller items which ought to be entered on the credit side of the Icelandic budget.

"No. II. of the expenditure, viz. the salaries of the bishop and the professors of the colleges, and other expenses connected with the colleges, form a heavy item in the expenditure of Iceland, or, in round numbers, \$27,000 annually. It is, however, not correct to charge this sum against Iceland unless an equal sum is entered on the credit side of the budget, because all the property supporting the two bishops and the two colleges of Iceland was sold according to a royal command of 29th April 1785, and the proceeds of the sale were paid into the Danish treasury on the understanding and implied promise of the king, that the expenses of these institutions were to be defrayed by the Danish treasury for the future. This sum is nevertheless annually charged against Iceland as if Denmark never had received any equivalent for it.

"The budget arranged according to the foregoing observations will be:

REVENUE.	EXPENDITURE.
I. From the trade, \$12,600 0	I. Expenses of the administration and medical staff of Iceland, . \$34,653 0
II. ,, Crown property, . 19,080 0	II. Expenses of the bishop and the educational establishments, . 34,212 72 sk.
III. ,, Royal tithes, 3,750 0	III. Sundries, . 4,000 0
IV. ,, Repayment of loans, . 8,192 15 sk.	IV. Annual surplus, 13,134 21
V. ,, Sundries, 8,165 6	
VI. ,, No. II. Expenditure, 34,212 72	
<u>Total, \$78,999 93 sk.</u>	<u>Total, \$78,999 93 sk.</u>

"Thus it will be seen that the Icelandic budget, instead of showing a deficit of \$21,078, 51 sk., has, when properly stated, a surplus of \$13,134, 21 sk. The claims of Iceland arising out of these financial misstatements were partly recognised by the Danish Government in the Act of 2d January 1871, by which it was provided that \$30,000 per annum should be paid perpetually from the Danish treasury to Iceland; and, in addition, an annual sum of \$20,000 for ten years, after which period this latter sum is to decrease by \$1000 per annum until it is extinguished.

"In conclusion, I will present the reader with the 'little bill' of the Icelanders against the Danish treasury. The rent of the Crown farms was always paid in kind, and the present money value of the articles paid as yearly rents for these farms at the time they were seized by the Crown is \$41,055, 40 sk. When the rents of the still unsold farms are subtracted, there remains,

I. An annual claim against the Danish treasury for the balance, amounting to	\$27,855 40 sk.
II. The Icelanders' claim for loss of interest of money paid into the Danish treasury for sold Crown property, the annual sum of	6,900 0
III. For the rent of farms belonging to the bishop sees, and sold for the benefit of the Danish treasury, calculated in the same way as the rent of the Crown farms, the annual sum of	31,769 52
IV. For movable property belonging to the episcopal sees, and appropriated by the Crown, the annual sum of	2,400 0
V. For the trade monopoly, the annual sum of	50,800 0 ¹
Total annual sums,	\$119,724 92 sk.

"Thus the Icelanders consider themselves to have good claims on the Danish treasury for the annual sum of \$119,724, 92 sk., or a round sum of \$3,000,000.

"On the other hand, the Icelanders consider themselves bound to pay \$20,000 annually towards the general expenditure of the Danish state (Report of the Royal Commission Appointed to Inquire into the Financial Affairs of Iceland, 1861, as communicated in the *Thj666lfr* newspaper, xvii., pp. 101, 107)."

¹ It can be proved that the different sums paid into the Danish treasury by the various companies who rented the trade with Iceland from time to time (from 1602 to 1722) amounted at least to \$2,000,000, and the revenue of Iceland has never been credited with this sum.

SECTION IV.

POLITICAL GEOGRAPHY OF ICELAND.

§ 1. GENERAL CONSIDERATIONS.

Iceland, we have seen, is the largest island in the North Atlantic, and one of the most considerable known to the Old World. Lying 130 direct geographical miles east of Greenland, 500 north-west of Scotland, and 850 west of Norway; distant 1000 miles from Liverpool, 1300 from Copenhagen, and 3000 from Boston, it is claimed as an Eastern dependency of the American continent which the Icelander first colonised. It has also been called a "singular fragment of Scandinavian Europe." Yet, geographically considered, it belongs neither to the Old nor to the New Hemisphere; it is a little continent of itself.

Formerly a considerable part of the island was made to enter the Polar circle, which, in some maps, passed through the northern third. On the other hand, the eastern coast was curtailed of its due proportions, being thrown too far west even in charts still used. Hooker, for instance, makes the longitude range from 10° to 12° west of Greenwich,—an extreme error of some two to three degrees.

Iceland extends from Portland, in N. lat. 63° 22', to the North Cape, in N. lat. 66° 44', covering 3° 22' = 202 direct geographical miles of depth. The extreme longitudinal points are laid down between the north-eastern projection of Eskifjörð, in W. long. G. 13° 38' (33' ?), and the Point of Breiðavík, in 24° 40' (36' ?), or 11° 25' of length, the degrees in this latitude being greatly reduced.¹ Thus the maximum depth would represent 186 geographical miles, which some writers increase to 190 and 192; and

¹ The degree of longitude in N. lat. 63° measures 2770·1 feet.
 " " " 64° " 2674·9 "
 " " " 65° " 2578·9 "
 " " " 66° " 2432·1 "
 " " " 67° " 2384·6 "
 instead of 6082 at the Equator.

the length 308, which are again extended to 313. The circumference, measured from naze to naze, is variously given at 752 to 830 miles. The superficial area has also been variously calculated. Whilst Ólafsson gives 56,000 square geographical, and Egger 29,838 Danish, miles ($15 = 1^\circ$), modern calculations have reduced it to 37,000, 37,388, and 40,000, the latter being generally assumed in round numbers.¹ Thus Iceland is about five times instead of double, as certain writers supposed, the size of Sicily (7700 sq. geog. miles); about one-sixth larger than Ireland (32,511); nearly equal to Portugal (37,900); approaching the state of New York (46,000); two-ninths the extent of Sweden, and one-fifth the size of France.

The parallel of N. lat. 65° , which, roughly speaking, bisects Iceland, would pass westwards through Southern Greenland, cross Davis Straits, Fox-land and Fox-channel; the northern apex of Southampton Island, the Back River, the Bear Lake, and entering Eskimo-land, formerly Russian America, would leave Norton Sound to the south, and Prince of Wales Cape a few miles to the north. Thence travelling over Behring's Strait, it would enter Asia a little south of East Cape, cut the two Siberias, the Tobolsk River, the Urals, the White Sea, and the Bothnian Gulf, and issue from Europe about Vigten Island, somewhat north of mid-Norway. The antæcious oceans of the Old World contain no corresponding feature: the New Hemisphere shows immense uninhabited tracts — Graham's Land, Enderby's, Kemp's, and the Antarctic continent, which are probably continuous; with their outliers — South Shetlands, South Orkneys, and Sandwich Land.

The estimate of the habitable area was fixed at one-eighth by older writers.² It is now assumed, with Paijkull, at one-tenth (4000 : 40,000). Human life is confined to the larger islets, to

¹ Sir George S. Mackenzie makes the desert tracts of inner Iceland to number 40,000 square miles, a figure which still deforms Lyell's admirable Principles of Geology, 11th edit., vol. ii., p. 454. Mr Vice-Consul Crowe reduces the total area to 29,440 square miles (geog.), of which two-thirds are upwards of 1000 feet above sea-level, and only 4288 square geographical miles are covered with perpetual snow, whose line begins between 2000 and 3500 feet.

² The proportion of "boe," where barley can be cultivated in the Færoes, was, till very lately, 1 : 60 of outfield or pasture.

the vicinity of the more important sub-maritime lakes, to the sheltered valleys and river courses, below the plateau, and to the false coast. The latter, *eluvie mons deductus in æquor*, is formed by the débris and alluvium of the mountain walls washed down by rains, torrents, débâcles, and glacier-exundations, and subsequently elevated by earthquakes, which are supposed to be still raising the southern coast.¹ According to Gunnlaugsson and Olsen, one-third is green or agricultural; there is a similar proportion of Heiðiland; and the remainder is Úbygð (*hod. Obygð*) or desert—a chaos of sand-tracts and peat-swamps, lava-runs, and the huge masses of eternal congelation called Jökull.²

The population was laid down by Barrow (1834) at 0·2 per whole area, and by Paijkull (1865) at 1·6: being now assumed at 70,000, it would be 1·75. Paijkull makes 6·2 head the average of habitable ground, and for the reclaimed tracts he gives 17·5. The latter figure exceeds the mean of Africa, which is 16 to the square mile (*viz.*, 192,000,000 head to 11,556,000 square statute miles), and it is three times greater than in the whole Western Hemisphere.

¹ The day is past when the “determinate lines of fracture,” which resembled the empirical parallelism and the pentagonal networks of mountains, connected Hekla with Etna—yet it was an improvement upon the theory which made both of them mouths of the Inferno. Evidence to the latter purport has been given in our law-courts. The earthquake district of Iceland was popularly supposed to include Great Britain, Northern France, Denmark, Scandinavia, and Greenland—regions of the most diversified formation. The theory seemed to repose for base upon isolated cases of simultaneity, possibly coincidents. But, as Dr Lauder Lindsay remarks, contemporaneity would suggest a vast extension of these limits. The (Lisbon) earthquake of 1755, for instance, extended from Barbary to Iceland, from Persia to Santos in the Brazil. The earthquake of 1783 was equally damaging to Calabria and to Iceland. Even in 1872, there were, as has been shown, almost simultaneous movements in Syria, Naples, and Iceland.

² Hooker tells us to pronounce Jökull “yuckull,” which involves three distinct errors, especially in the double liquid, which becomes everywhere, except before a vowel, *dl* or *ll*, like Popocatapell. Iaki is a lump of ice, a congener of the Pers. *Ī*, like our “ice,” although Adelung derives the Germ. *Eis-jücher* from the Lat. *Jugum*, and translates “*Excelsi Jökli*” by “*Montana Glaciers*.” Jökull in Icel. primarily means “icicle,” a sense now obsolete. The signification “glacier” was probably borrowed from the Norse country Hardanger, the only Norwegian county in which “Jökull” appears as a local name; and it was applied to the “*Gletschers*” of the Iceland colonies in Greenland. “The Jökull” *par excellence* is Snæfellsjökull.

§ 2. DIVISIONS.

In early Norwegian days (A.D. 965) Iceland was distributed, like Ireland, into four quadrants, tetrads, or fourths (*Fjórðungar*), named after the points of the compass. These were—

Austfirðinga-fjórðungr,	.	.	Eastern Quarter.
Vestfirðinga-	„	.	Western „
Norðlendinga-	„	.	Northern „
Sunnlendinga-	„	.	Southern „

Before A.D. 1770, one *Amtmaðr* governed the whole of Iceland; in that year it was divided into two *Amts* (rules), the north-eastern and the south-western. Thus the northern and the eastern quadrants, whose population was scanty, were placed for administrative purposes under a single *Amt*, the headquarters being at *Fríðriksgáfa*, of old *Möðruvellir*, near *Akureyri*, on the western shore of the *Eyjafjörð*. In 1787 the south-west *Amt* was divided into two, the southern and the western. In 1872 it was proposed to unite the western with the southern tetrarchy, and to transfer the amtship of *Stykkishólm* to *Reykjavik*, the capital. Thus there will again be only two *Amts* under the governor, and this simplification may act well.

The official title of the highest official was *Stiptamtmaðr*; in Danish, *Stiftamtmand*.¹ It has lately been changed, without, however, any other advantage of rank or pay, from High Bailiff to Governor-General (*Landshöfðingi*). Formerly the military and naval services had a preference, and titled names were not rare: at present the post is given to civilians.² The salary of this high official was \$500 in 1772; it afterwards became \$2000, and now it is \$4000.

The four quarters were divided into *Sýslur*³ (*Dan. Syssel*),

¹ The Icel. *Stipti* (*Dan. Stift*, and old Low Germ. *Stigt*) means a bishopric or ecclesiastical bailiwick. Hence *Uno Von Troil* translates *Stiftamtmand* by “bailiff of episcopal diocese,” and it gradually came to mean a civil governor. *Cleasby* informs us (*sub voce*) that both name and office are quite modern in Iceland.

² Further details concerning the governor-general will be found in the *Journal*.

³ The *Sýsla* (*pl. Sýslur*, and in compounds *Sýslu*) is derived from *Sýal*, “business” —*að sýsla*, “to be busy.” As a law term, it signifies any stewardship held from

which are ever changing. For instance, the Gullbringu and Kjósar have lately been united, politically as well as ecclesiastically; the same has happened to Mýra Sýsla and Hnappadals, whilst the vacancies have been filled up by the Vestmannaeyjar. Under the twenty-one Sýslur, cantons or counties, prefectures or sheriffdoms, are the 169 Hrepps or poor-law districts,¹ which are not like our ecclesiastic divisions. We have preserved in England the word, *e.g.*, Rape of Brambor.

The following is a list of Sýslur and Hreppar, taken from the official documents which show the movement of Iceland in 1868.²

The Suður-umdæmið, or southern jurisdiction, contains 7 Sýslur and 48 Hreppar, viz.:

1. Austur-Skaptafells Sysla,	}	with 7 Hreppar.	
2. Vestur-Skaptafells "			
3. Vestmannaeyjar	"	1	"
4. Rángárvalla	"	8	"
5. Árnes (not Arness)	"	13	"
6. Gullbringu and Kjósar	"	9	"
7. Reykjavik	"	1	"
8. Borgarfjarðar	"	9	"

The Vestur-umdæmið contains 6 Sýslur and 55 Hreppar, viz.:

1. Mýra and Hnappadals Sýslur,	with 10 Hreppar.		
2. Snæfellsnes (not Snoefells) Sysla,	"	7	"
3. Dala	"	8	"
4. Barðastrandar	"	10	"
5. Ísafjarðar	"	14	"
6. Stranda	"	6	"

the king or bishop; in a geographical sense, it means a district, bailiwick, or prefecture. At present it answers to the Thing of the Icelandic Commonwealth (Cleasby).

¹ Not to be confounded with the Sökun, or parish proper. Cleasby is disposed to date the Rapes from the eleventh century, and he remarks that the district round the bishop's seat at Skálholt is called "Hreppar," showing that the house was the nucleus of the division.

² From pp. 703-909, the *Skýrslur um Landshagi á Íslandi*, vol. 4, Möller, Copenhagen, 1870, a portly octavo of 934 pages. Mr Longman's list of the Sýslas (p. 34, *Suggestions for the Exploration of Iceland*) was quite correct, except in point of orthography, but it is no longer so.

The Norður og Austur Umdæmið contains 7 Sýslur and 66 Hreppar, viz. :

1. Húnavatns	Sýsla,	with 12 Hreppar.
2. Skagafjarðar	"	" 12 "
3. Eyjafjarðar (Grimsey, etc.),	"	" 10 "
4. Suður-Thingeyjar	" }	" 12 "
5. Norður-Thingeyjar	" }	" 12 "
6. Norður-Múla ¹	"	" 10 "
7. Suður-Múla	"	" 10 "

When the author visited Iceland (1872), the Bæarfógeti, or mayor of Reykjavik, was Amtmaðr for the southern quarter. Hr Christián Christiánsson ruled the north and east at Fríðriksgáfa, and Hr Bergur Thorberg, knight of the Dannebrog, had his headquarters at Stykkishólm on the western fourth. Now (1874), Hr Bergur Thorberg governs the southern and western quadrants, and Hr Christián Christiánsson, with the title of Justitsráð, the northern and the eastern. These officers are addressed as Hávelborni, and they receive the reports of the several Sýslumenn.

The Sýslumenn, or sheriffs, are the civil staff, the tax-gatherers and stewards as it were of the king; and appointed by the Crown. In order to obtain this office they must be graduates of the University of Copenhagen; they wear uniforms, a gold band round the cap, frock coats, waistcoats, and vests of blue broadcloth, with the royal button, and they may become ministers of state. They preside at the Héraðthings² or annual county courts; they watch over the peace of their shrievalties; they officiate as public notaries; and they maintain the rights of inheritance. The Sýslumaðr in his judicial capacity, and chiefly when land-questions are to be determined, is occasionally assisted by four Meðdómsmenn (*concessores judicii*), who give suffrage and register proceedings; decisions are pronounced according to

¹ The Múla-Sýsla ("mull" county) was formerly divided into three parts, the northern, the central, and the southern, each with its Sýslumaðr. The present distribution dates from the year 1779.

² Hérað (or Hierat) is the Scotch "heriot," a tax paid to feudal lord in lieu of military service. In Icelandic the Hérað is a geographical district generally, and is specially applied to the river-basin of the Skagafjörð (Cleasby).

the vote of the majority.¹ He superintends elections. Formerly he could compel the lieges to repair the highways, and the law still obliges each landed proprietor to keep the rough fences upon his estate in good condition. A small sum called *Vegabótargjald* is also taken by the *Sýslumaðr* to pay for the necessary expenses of roads; unfortunately the *corvée* or robot of peasants has been abolished, and the means of transit are much neglected. A law compelling all sturdy vagrants and able-bodied paupers to work upon the highways is as much wanted in Iceland, as useful and productive employment for the hordes of soldiers who now compose the standing armies of Europe.

Under the *Sýslumenn* and appointed by the *Amtmenn* are the *Hreppstjórar* or *Hreppstjórnarmenn*, bailiffs and poor-inspectors with parochial jurisdiction. It is hardly to be doubted that the division into Rapes existed in heathen days, and Dr Konrad Maurer believes that they had organised poor laws and rules for vagrancy which the Christian bishops afterwards amended and expanded. In these days the Rape-stewards assist their civil and ecclesiastical superiors to manage the business of the Rape, to preserve public order, and to estimate cessable property according to the ancient custom of the island. They fix the poor-rate for each land-holder, and they especially attend to the condition and maintenance of paupers (*Úmagar*), who are no longer subject to the pains and penalties of that ancient code the *Grágás* (grey or wild goose).² Where the parish exceeds 400 souls, these minor officials usually number two to five. They are substantial yeomen who wear no distinctive dress. They and their children are exempt from taxation, and

¹ The sheriff does *not* attend parish meetings, he has no schools to inspect, for there are none, in fact he has nothing to do with education at all, that being the business of the parish priest under the superintendence of the *prófastr* (dean) of the district.

² The name of this Icelandic code of laws, which must not be confounded with the *Grágás* of Norway, is variously explained from the grey binding or from being written with a grey goose-quill. It was adopted in Iceland in A.D. 1118, and it contained a *Lex de ejusmodi mendicis (sturdy vagrants) impunè castrandis*. Some writers suppose that the Icelandic Commonwealth had written laws but no code. After the union with Norway the island received its first written code, the *Iron-side*, *Járn-Síða* (A.D. 1262-1272), and this was exchanged in A.D. 1272 for the *Jónsbók*, so termed from John the Lawyer who brought it from Norway. Uno Von Troil (p. 78) removes the date of the latter to A.D. 1272.

this is their only salary. The functions of the Amtmenn, Sýslumenn, and of the Hreppstjórar especially, will be greatly modified when the law of May 4th, 1872, comes into operation during the present year. A standing Hreppsnefnd, or a committee of three, five, or seven, is to be elected in each Hreppr. This body is to have charge of the poor, the sanitary conditions, and the general business of the Hreppr, including the repair of roads. It is also to levy the poor-rates and other cesses of the Hreppr. The Hreppstjórar will be retained, but their functions are not defined. A Sýslunefnd is also to be elected in each Sýsla, consisting of six to ten members; and the Sýslumaðr is *ex officio* a convener or foreman of this committee. It is to have charge of the roads, to manage the general business of the Sýsla, and to exercise supervision over the Hreppsnefndir. Thirdly, Amtsráð, Amt-Councils, consisting of the Amtmaðr and two elected members, will audit and control all the accounts of the Amt; will act as trustees of all public institutions and public legacies, and will have supervision over the Hreppsnefndir and Sýslunefndir.

§ 3. JUDICIAL PROCEDURE.

It is well known that trial by jury, the bulwark of Englishmen's rights, though fathered by English legal antiquaries upon King Alfred, is a purely Scandinavian institution. According to the Landnámabók (II., ix., note, p. 83), the Kviðr plays a considerable part in the republican history; and the form of trial like our juries *de vicineto* appears in the thirteenth century. As Mr Vigfússon remarks (Cleasby, sub voce Kviðr): "From the analogy of the Icelandic customs, it can be inferred with certainty that, along with the invasion of Danes and Norsemen, the judgment by verdict was also transplanted to English ground, for the settlers of England were kith and kin to those of Iceland, carrying with them the same laws and customs; lastly, after the Conquest, it became the law of the land. This old Scandinavian institution gradually died out in the mother countries¹

¹ Mr Dasent, Introduction to Dict. (xlviil.), remarks that the jury was never developed in Norway, and only struck faint root in the Danish and Swedish laws.

and ended in Iceland, A.D. 1271-1281, with the fall of the Commonwealth and the introduction of a Norse code of laws, whereas it was naturalised in England, which came to be the classical land of trial by jury."

Modern Iceland utterly ignores it, but, as in the United States, all freemen are familiar with judicial procedures, and public opinion, not to speak of the press, is a sufficient safeguard for a small community.

In criminal cases the Crown prosecutes, and the king must ratify capital sentences. Like the Cives of Rome, and very unlike the subjects of civilised Europe, Icelanders are not confined before trial, there being no houses of detention; but a criminal is kept either by the sheriff or the hreppstjóri, who is responsible for his being brought to judgment at an order from the court. By way of checking the litigiousness of the lieges, a regular system of arbitration is in force. The parish priest *ex officio* and one of his parishioners are the Forlíkunar menn (reconciliators), and act as umpires; and a previous investigation of causes often quashes them.

It is only in administrative cases, *e.g.*, about paupers, etc., that there is an appeal from the decisions of the sheriff to the Amtmaðr. From the Sýslumaðr's court civil causes go for cassation directly to the Supreme Court (Konunglegi-Landsyfirrettur) of Reykjavik, which was instituted in A.D. 1800, when the Althing, which then had judicial as well as legislative and administrative functions, was abolished. The Royal Court consists of a Chief Justice (Justiciarius) and two assessors; the governor presides, but takes no part in the judicial proceedings. All three votes are equal, and the majority decides, thus making the judge and assessors jury as well as judges. The actual dignitaries are Hr Þórður Jonasson, Hr Jón Pétursen, and Hr Magnús Stephensen; the salaries are, \$2816, \$2016, and \$1416. There are also two procurators (the English barrister and the Scotch advocate), Hr Páll Melsted and Hr Jón Guðmundsson, who edits the leading newspaper. Hr P. Guðjónsson, the church organist, is not

When asserting the jury to be purely Scandinavian, the author speaks of Europe, neglecting the admirable Panchayat system which arose in the village republics of Hindostan, and a multitude of other similar institutions.

a procurator although he occasionally conducts cases before the superior court.

At this Royal High Court of Judgment the evidence and pleadings of both parties are heard, and the Justiciarius, after taking the opinions of his assessors, pronounces his decision. For cassation, causes must then go to the Chancellerie, or Supreme Court of Judicature at Copenhagen.

SECTION V.

ANTHROPOLOGY.

STATISTICS—GENERAL CONSIDERATIONS—PERSONAL APPEARANCE —CHARACTER—THE FAMILY—DISEASES.

§ 1. STATISTICS.

The constitution of society and the physical features of Iceland are peculiarly favourable to numbering the people. The island has no object either to diminish her total in order to avoid recruiting, and has scant interest in exaggerating it with a view to urban concessions and civic privileges. Between A.D. 1840-60 the census was quinquennial; since that time every decade has been deemed sufficient.

The following numbers are taken from various sources, and especially from the latest official figures in the *Skyrslur* of October 1, 1870:

O. OLAVIUS PONTEPPIDAN THAARUP, ETC.

	S. Qr.	W. Qr.	N. & E. Qrs.	Total.
In A.D. 1703, . . .	18,728	15,774	15,942	50,444
„ 1769, . . .	17,150	18,596	15,455	46,201

In A.D. 1770 Uno Von Troil (p. 25) estimated the population at 60,000 souls, or about 10,000 more than sixty years after the Norwegian colonisation. In 1783 the total fell to 47,287, and in 1786 to 38,142 (Preyer and Zirkel, p. 483). Since the beginning of the present century we have exact and minute computations:

STATISTISK TABEL-VÆK.

	S. Qr.	W. Qr.	N. & E. Qrs.	Total.
In A. D. 1801, . . .	17,160	13,976	16,104	46,240 (47,207?)
„ 1806 (Preyer and Zirkel, whereas Mackenzie assigns it to 1804), . . .				46,349
„ 1808 (Preyer and Zirkel ; and Mackenzie, p. 280), . . .				48,063
„ 1834, (Dillon, unofficial, evidently “round numbers”) . . .				53,000
„ 1835, . . .	20,292	14,480	21,263	56,035
„ 1840, . . .	20,677	14,665	21,752	57,094
„ 1842 (Meddel., ii. 70), . . .				53,000
„ 1845, . . .	21,364	14,956	22,238	58,358

SKÝRSLUR.

	S. Qr.	W. Qr.	N. & E. Qrs.	Total.
In A. D. 1850, . . .	21,288	15,112	22,757	59,157
„ 1855, . . .	22,810	16,362	25,431	64,603
„ 1857 (Preyer and Zirkel), . . .				66,929
„ 1858 (Do.), . . .				67,847
„ 1860, . . .	23,137	16,960	26,890	66,987
„ 1865 (Vice-Consul Crowe), . . .				68,000
„ 1870, . . .	25,063	17,001	27,699	69,763
„ 1872 (estimated), . . .				70,000

while that of Madeira is 80,000.

The following table (Skýrslur um landshagi á Íslandi, v. 310, 1872) shows the increase of population during the present century down to 1870 :

From Feb. 1, 1801, to Feb. 2, 1835, increase 18·71 per cent.			
„ Feb. 2, 1835, to Nov. 2, 1840, „	1·89	„	
„ Nov. 2, 1840, to Nov. 2, 1845, „	2·55	„	
„ Nov. 2, 1845, to Feb. 1, 1850, „	1·01	„	
„ Feb. 1, 1850, to Oct. 1, 1855, „	9·21	„	
„ Oct. 1, 1855, to Oct. 1, 1860, „	3·69	„	
„ Oct. 1, 1860, to Oct. 1, 1870, „	4·14	„	

The average rate of increase during the last century was very small : between A.D. 1703 and 1758 it was about one-fifth of 1 per cent. During the present age there has been, we observe, a tolerably regular progress with only three exceptions (A.D. 1835-40, A.D. 1845-50, and A.D. 1860-70). During this decade (1860-70) there has been a considerable failure, 4·14 per cent., or only 2·05 for each lustrum. In 1872, as will be seen, the number of males was 33,102; of females, 36,660. But throughout

Iceland the fluctuations have ever been so great as to reduce value of "general considerations."

The following tables are compiled from the minute return made to the Danish Government, and published in vols. i. of 1852-61, of the Meddelser fra det Statistiske Bureau, Copenhagen.

No. I.—Table showing the Population of Iceland and its Distribution on 1st February 1850, and on the 1st October 1855.

Districts.	No. of Families.		Population.		Increase in hundred
	1850.	1855.	1850.	1855.	
SOUTHERN AMT.					
Reykjavik,	219	250	1149	1354	17
Gullbringu and Kjósar Sýsla, ¹ exclusive of Reykjavik,	783	853	4519	4853	7
The same, including Reykjavik,	1002	1103	5668	6207	9
Borgarfjarðar Sýsla,	329	355	2097	2312	10
Arnes Sýsla,	723	755	5018	5382	7
Rángárvalla Sýsla,	700	717	4766	4917	3
Austr and Vestr Skaptafells Sýsla, ¹	481	529	3340	3545	6
Vestmannaeyja ² Sýsla,	91	98	399	447	12
Total (Southern Amt),	3326	3557	21,288	22,810	7
WESTERN AMT.					
Mýra and Hnappadal's Sýsla, ¹	379	383	2410	2569	6
Snæfellsness Sýsla,	512	526	2684	2825	8
Dala Sýsla,	267	277	1923	2104	9
Barðastrandar Sýsla,	336	347	2518	2703	7
Ísafjarðar ³ Sýsla,	508	545	4204	4589	10
Stranda Sýsla,	179	190	1378	1572	14
Total (Western Amt),	2181	2268	15,112	16,362	8
NORTHERN AND EASTERN AMTS.					
Húnavatns Sýsla,	556	639	4117	4637	12
Skagafjarðar Sýsla,	626	622	4033	4258	8
Eyjafjarðar Sýsla,	625	638	3965	4289	8
Norðr and Suðr Thingeyjar Sýsla, ¹	640	684	4453	5108	14
Norðr-Múla Sýsla,	405	473	3201	3754	17
Suðr-Múla Sýsla,	391	416	2988	3385	13
Total (Northern and Eastern Amts),	3243	3472	22,757	25,431	11
Total for all Iceland,	8750	9297	59,157	64,603	11

¹ Separated on Ólsen's map.

² Apparently combined with Rángárvalla Sýsla on Ólsen's map.

³ Sub-divided into north and west by P. and Z., p. 480; Mck., p. 281.

II.—Distribution of the Population of Iceland according to ages in 1855.

Ages.	Per cent.	Ages.	Per cent.
Under 20 years,	42·315	Between 50 and 60 years, .	9·303
Between 20 and 30 years, .	19·485	Between 60 and 70 years, .	5·413
Between 30 and 40 years, .	11·886	Over 70 years,	2·463
Between 40 and 50 years, .	9·185		

III.—Table showing the Means of Support of the Population of Iceland on the 1st October 1855.

OCCUPATIONS.	PROVIDING SUPPORT.			SUPPORTED.						TOTAL.			Percentage of Population.
	Males.	Females.	Total.	Wives & Families.			Servants.			Males.	Females.	Total.	
				Males.	Females.	Total.	Males.	Females.	Total.				
clergymen,	196	7	203	399	628	1022	527	613	1140	1122	1243	2365	3·66
officials and ployés,	45	2	47	74	105	179	105	123	228	224	230	454	0·70
men who live by their means,	81	89	170	40	84	124	18	44	62	139	217	356	0·55
of science and letters,	29	..	29	20	42	62	20	29	49	69	71	140	0·22
men who live by agriculture,	7063	618	7681	11,335	19,354	31,189	6112	7493	13,605	25,010	27,465	52,475	81·23
men who live by the sea,	980	86	1066	1090	1925	3015	465	509	974	2535	2520	5055	7·82
fishermen,	199	27	226	133	219	352	59	73	132	391	319	710	1·10
innkeepers,	87	4	91	136	231	367	117	155	272	340	390	730	1·13
men who work the day,	172	62	234	97	168	265	13	11	24	232	241	473	0·81
men who pursue no definite occupation,	162	123	285	67	172	239	20	42	62	249	337	586	0·91
alms-givers,	497	710	1207	..	..	..	..	..	..	497	710	1207	1·87
others,	2	..	2	..	..	..	..	..	..	2	..	2	0·00
Total,	9513	1728	11,241	13,891	22,923	36,814	7456	9092	16,548	30,860	33,743	64,603	100·00
Percentage of population,	14·7	2·7	17·4	21·5	35·5	57·0	11·6	14·1	25·6	47·8	52·2	100·0	..

The following are the latest returns :

Table showing the Population of Iceland on the 1st October 1860 and 1870.

Districts.	Number of Families.	Population.		Increase and Decrease per cent.
		1860.	1870.	
SOUTHERN AMT.				
Reykjavik,	356	1444	2024	
Gullbringu and Kjósar Sýsla,	824	5001	5302	+ 13·7
Borgarfjarðar Sýsla,	352	2251	2590	+ 15·1
Arnes Sýsla,	772	5409	5891	+ 8·9
Rángárvalla Sýsla,	689	5034	5201	+ 3·3
Austr and Vestr Skaptafells Sýsla,	490	3499	3484	- 0·4
Vestmannaeyja Sýsla,	885	499	571	+ 14·4
Total (Southern Amt),	3568	23,137	25,063	+ 8·3
WESTERN AMT.				
Mýra and Hnappadal Sýsla,	373	2663	2765	+ 3·9
Snæfellsness Sýsla,	471	2869	2799	- 2·4
Dala Sýsla,	285	2223	2190	- 1·5
Bárbastrandar Sýsla,	311	2727	2699	- 1·0
Ísafjarðar Sýsla,	518	4860	4895	+ 0·7
Stranda Sýsla,	192	1618	1653	+ 2·2
Total (Western Amt),	2150	16,960	17,001	+ 0·2
NORTHERN AND EASTERN AMTS.				
Húnavatna Sýsla,	623	4722	4906	+ 3·9
Skagafjarðar Sýsla,	614	4379	4574	+ 4·5
Eyjafjarðar Sýsla,	707	4647	5108	+ 9·9
Thingeyjar Sýsla,	715	5497	5746	+ 4·5
Norðr-Múla Sýsla,	487	4183	3885	+ 0·5
Suðr-Múla Sýsla,	442	3462	3480	- 7·1
Total (Northern and Eastern Amts),	3588	26,890	27,099	+ 3·0
Total for all Iceland,	9306	66,987	69,763	+ 4·1

The following is the official list of households for 1872 :

In the Suðr-umdæmið (South Quarter) are 3568 households, with 11,835 men and 13,228 women.
„ Vestr „ (West „) „ 2150 „ 7,981 „ „ 9,019 „
„ Norðr og Austr . . . „ 3588 „ 13,286 „ „ 14,413 „
Total, 9306
33,102 men and 36,660 women.

According to Mr Vice-Consul Crowe (Report), during the average of ten years (1855-65) there was annually—

1 marriage for every	143 persons.
1 birth for every	25 „
1 death for every	39 „
1 deaf and dumb for every	994 „
1 blind	320 „

In 1855 there were 202 blind and 65 born surd-mutes. In 1870 the former numbered 225 (160 men and 65 women), and the latter 50 (20 + 30).

In table III. (1855), we see that of 64,603 souls, 52,475, about three-fourths of the heads of families and those who provide support, lived by farming, that is, by cattle-breeding, whilst more than four-fifths of the entire population thus derived their maintenance. At the same time, 5055 were fishermen, and only 703 were traders, showing a primitive state of society. Mr Consul Crowe (Report, 1870-71) remarks: "Somewhat more than the 75 per cent. of the total population were engaged in sheep rearing and agricultural pursuits; and, notwithstanding the steady and lucrative nature of the fisheries, only about 10 per cent. were engaged in them." The mechanics may be further distributed as follows:

	(in 1855)	1	proportion per thousand	0·01	in 1870 numbered	2
Bakers,	„	35	„	0·55	„	17
Coopers,	„	80	„	1·24	„	21
Gold & Silver } Smiths, }	„	80	„	1·24	„	31
Blacksmiths,	„	61	„	0·94	„	12
Carpenters,	„	6	„	0·09	„	2
Masons,	„	4	„	0·07	„	1
Millers,	„	8	„	0·13	„	1
Turners,	„	38	„	0·59	„	12
Boatbuilders,	„	27	„	0·41	„	10
Tailors,	„	174	„	2·69	„	56
Joiners,	„	46	„	0·71	„	15
Saddlers,	„	20	„	0·30	„	4
Weavers,	„	0	„	0·00	„	1
Watchmakers,	„	103	„	1·59	„	24
Other industries,	„		„		„	

The following is a table of ages in 1870:

Years.	MEN.				WOMEN.			
	Married.	Unmarried.	Widowers.	Separated.	Married.	Unmarried.	Widows.	Separated.
1	...	801	...	...	...	777	...	...
1-2	...	1530	...	...	...	1570	...	...
3-4	...	1814	...	...	...	1798	...	...
5-6	...	1828	...	...	...	1768	...	...
7-10	...	3073	...	...	...	3090	...	...
11-15	...	3713	...	...	...	3715	...	...
16-20	3	3693	...	...	39	3706	...	...
21-25	143	2374	2	...	350	2301	14	3
26-30	843	1601	16	7	1031	1691	55	9
31-35	1224	814	44	12	1384	1046	126	17
36-40	1869	650	96	17	1867	916	226	31
41-45	1377	307	107	18	1225	523	289	22
46-50	1125	171	131	29	1067	350	343	23
51-55	751	100	114	17	623	232	361	24
56-60	501	83	111	4	456	204	359	10
61-65	424	67	154	6	360	203	383	9
66-70	341	64	208	7	282	208	494	8
71-75	178	42	174	2	130	113	346	3
76-80	70	10	126	1	50	60	206	...
81-85	28	3	54	...	16	24	88	1
86-90	5	1	12	...	...	7	15	...
91-95	...	1	1	...	1	2	5	...
96-100	...	...	1	...	...	2	3	...
Above 100 ¹		none.				none		
	8882	22,740	1361	120	8881	24,306	3313	160
	33,103				36,660			
	69,763							

According to Mr Consul Crowe (Report, 1870-71), the proportion between births and deaths was:

¹ Dillon notices forty-one women who had passed ninety: the number has now greatly fallen off. There is a further decline from the days of Olaus Magnus, who informs us that "the Icelanders, who, instead of bread, have fish bruised with a stone, live three hundred years." The general longevity of Norway proves that the climates of the north, the *vagina gentium* of Jornandes, have nothing adverse to human life. In Scotland the census of 1870 gave a total of twenty-six centenarians—nine men and seventeen women.

Year.	Births.	Deaths.	Computed Population.	Percentage.
1861	2525	2391	66,973	+ 0·20
1862	2693	2374	66,792	+ 0·27
1863	2648	2115	67,325	+ 0·80
1864	2760	2001	68,084	+ 1·13
1865	2757	2100	68,741	+ 0·96
1866	2662	3122	68,281	+ 0·67
1867	2743	1770	69,254	+ 1·42
1868	2449	1970	69,733	+ 0·69
1869	2177	2404	69,506	+ 0·33
1870	2276	1698	70,084	+ 0·83
Total,	25,690	22,445		

The tables of 1855 gave an excess of 2865 women. Mac-kenzie (1801) shows 21,476 males to 25,731 females, or 4255 out of a total of 47,207. In 1865 the proportion of men to women was 1000 : 1093. In 1870 the conditions had improved, the surplus being only 3554 out of 69,763, a small percentage of waste labour.

It is easy to account for the preponderance of women, as well as their superior longevity, without entering into the knotty subject of what determines sex. They lead more regular lives, they have less hardship and fatigue, and they are rarely exposed to such accidents as being lost at sea or "in the mist." According to Mr Vice-Consul Crowe, in 1865-66, of every forty-two deaths one was by drowning.

There is a tradition that Iceland during its palmy days contained 100,000 souls, but it seems to rest upon no foundation. On the other hand, the old superstitious belief that some fatal epidemic invariably follows an increase beyond 60,000, has, during the last few years, shown itself to be equally groundless. It is probably one of the *post hoc, ergo propter hoc* confusions so popular amongst the vulgar; and, unhappily, not confined to the vulgar.

§ 2. GENERAL CONSIDERATIONS.

“The first inhabitants of the northern world, Dania, Nerigos, and Suæcia,” says Saxo Grammaticus, repeated by Arngrímur Jónsson, “were the posterity and remnant of the Canaanites *quos fugavit Jesus latro*—expulsed from Palestine about A.C. 1500 by Joshua and Caleb.” Duly appreciating the ethnological value of this tradition, we may remark that the occupation of Ultima Thule, which the ancients evidently held to be inhabited—*tibi serviat* must mean that there were men to serve—has not yet been proved. But Mongoloid or præ-Aryan colonies in ancient days seem to have overrun all the Old, if not the New World, and we must not despair of tracing them to Iceland.

The modern Icelander is a quasi-Norwegian, justly proud of the old home. His race is completely free from any taint of Skrælling, Innuít,¹ or Mongoloid blood, as some travellers have represented, and as the vulgar of Europe seem to believe. Here and there, but rarely, a dark flat face, oblique eyes, and long black horsehair, show that a wife has been taken from the land

“Where the short-legged Esquimaux
Waddle in the ice and snow.”

In the southern parts of the island there is apparently considerable Irish infusion; and we often remark the “potato face” and the peculiar eye, with grey-blue iris and dark lashes so common in outer Galway, and extending to far Tenerife.

It has been the fashion for travellers to talk of “our Scandinavian ancestors in Iceland,” to declare that the northern element is the “backbone of the English race,” and to find that Great Britain owes to the hyperborean “her pluck, her go-ahead, and her love of freedom.”

That a little of this strong liquor may have done abundant good to the puerile, futile Anglo-Kelt, and the flabby an

¹ Innuít (Eskimo), like Illinois (from Illeni), means simply “a man”—frequent tribal designation amongst savages. So Teuton and Deutsch, with their numberless derivations, are derived from Goth. Thiud, a people; Aleman from “All-men,” and “German perhaps from Guerre-man” (Farrar, Families Speech).

plegmatic Anglo-Saxon, there is no doubt, but happily we have not had a drop too much of northern blood. The islanders are by no means slow to claim descent from the old Jarls of Norway and Sweden, whilst some of the peasantry have asserted, and, it is said, have proved, consanguinity with the Guelphs: this would make them Germans, like the Royal Family of Denmark, who enjoy only poetical and laureated connection with the "Sea-Kings." Those who reject these pretensions reply that every noble house emigrating from Scandinavia in the ninth and tenth centuries brought with it a train of serfs and vassals; for instance, Njál headed nearly thirty fighting men, and his vassals included, and Thráin led fifteen house-carls trained to arms. And genealogical statistics prove that while the Jarl's blood dies out, the Carl's increases and multiplies.

The Saga's description of Gunnar Hamondsson is that of a well-favoured Icelander in the present day: "He was handsome of feature and fair-skinned; his nose was straight and a little turned up at the end ('tip-tilted'); he was blue-eyed, and right-eyed, and ruddy cheeked; his hair was thick and of good hue, and hanging down in comely curls." And Skarphèdinn [jálsson may stand forth as the typical "plain" Thulite: "His hair was dark-brown, with crisp curly locks; he had good eyes; his features were sharp, and his face ashen pale; his nose turned up, and his front teeth stuck out, and his mouth was very ugly."

The Icelander's temperament is nervoso-lymphatic, and, at best, nervoso-sanguineous. The nervoso-bilious, so common in the south of Europe, is found but rarely; and the author never saw an instance of the pure nervous often met with in the United States and the Brazil. The shape of the cranium is distinctly brachycephalic, like the Teuton who can almost always be discovered by his flat occiput and his projecting ears. The face is rather round or square than oval; the forehead often rises high, and the malar bones stand out strongly, whilst the cheeks fall in. A very characteristic feature of the race whose hardness, not to say harshness, of body and mind still distinguishes it from its neighbours, is the eye, dure and cold as a pebble—the mesmerist would despair at the first sight. Even

amongst the "gentler sex" a soft look is uncommonly rare, and the aspect ranges from a stoney stare to a sharp glance rendered fiercer by the habitual frown. Hence probably Uno Von Troil (p. 87) describes the women as generally ill-featured. The best specimens are clear grey or light blue, rarely brown and never black; and the iris is mostly surrounded by a ring of darker colour, the reverse of *arcus senilis*. Squints and prominent eye-balls, in fact what are vulgarly called "goggle eyes," are common; and even commoner, perhaps, are the dull colourless organs which we term "cods' eyes." The "Irish eye," blue with dark lashes, is still found in the southern part of the island, where, perhaps, thralls' blood is most common. A mild and chronic conjunctivitis often results from exposure to sun-glare after dark rooms and from reading deep into the night with dim oil lamps. The nose is seldom aquiline; the noble and sympathetically advancing outlines of the Mediterranean shores will here be sought for in vain.¹ The best are the straight, the worst are offensive "pugs." Only in two instances, both of them men of good blood, I saw the broad open brows, the Grecian noses, the perpendicular profiles, the oval cheeks, and the chins full but not too full, which one connects in idea with the Scandinavian sea-king of the olden day. As a rule, then, the Icelandic face can by no means be called handsome.

The oral region is often coarse and unpleasant. Lean lips are not so numerous as the large, loose, fleshy, and *bordés* or slightly everted, whilst here and there a huge mouth seems to split the face from ear to ear. The redeeming feature is the denture

¹ The discovery of Uriconium and of Roman remains throughout England, and even in London, during the last few years, strongly suggests that the beauty of the English race is derived from a far greater intermixture of southern blood than was formerly suspected; and the racial baptism, repeated by the invasion of the Normans, must also have brought with it Gallo-Romans in considerable numbers. We can hardly doubt that the handsome peasantry of south-western Ireland is the produce of Spanish or Mediterranean innervation; and a comparison with the country people of Orotava in Tenerife, where the Irish have again mixed with the mingled Hispano-Guanche race, shows certain remarkable points of family likeness. On the other hand, except in certain parts of Great Britain, especially the Danelagh or Scandinavianised coasts and the counties occupied by the Angli and other Teutonic peoples, the English race remarkably differs from both its purer congeners, the homely Scandinavians and Germans. The general verdict of foreigners confirms its superior beauty, which indeed, is evident to the most superficial observer.

The teeth are short, regular, bright-coloured, and lasting, showing uncommon strength of constitution. They are rarely clean when coffee and tobacco are abused, and they are yet more rarely cleaned. Doubtless a comparatively scanty use of hot food tends to preserve them. The jowl is strong and square, and the chin is heavy, the weak "vanishing" form being very uncommon. The beard is sometimes worn, but more often, clean shaved off; it seldom grows to any length, though the mustachios, based upon a large and solid upper lip, are bushy and form an important feature. Thick whiskers are sometimes seen, and so are "Newgate frills," from which the small foxy features stand sharply out.

The other strong points are the skin and hair. The former is almost always rufous, rarely milanesian, and the author never saw a specimen of the leucous (albino). The "positive blonde" is the rule; opposed to the negative or washed out blonde of Russia and Slavonia generally. The complexion of the younger sort is admirably fresh, pink and white; and some retain this charm till a late age. Its delicacy subjects it to sundry infirmities, especially to freckles, which appear in large brown blotches; exposure to weather also burns the surface, and converts rose and lily to an unseemly buff and brick-dust red. It is striated in early middle-age with deep wrinkles and it becomes much "drawn," the effect of what children call "making faces" in the sunlight and snow-blink. In the less wholesome parts of the island the complexion of the peasantry is pallid and malarious.

Harfagr (*Pulchricomus*) is an epithet which may apply to both sexes. The hair, which belongs to the class *Lissótriches*, subdivision *Euplokomoi*, of Hæckel and Müller (*Allg. Ethnographie*, 1873), seldom shows the darker shades of brown; and in the very rare cases where it is black, there is generally a suspicion of Eskimo or Mongoloid blood. The colour ranges from carrotty-red to turnip-yellow, from barley-sugar to the *blond-cendré* so expensive in the civilised markets. We find all the gradations of Parisian art here natural; the "corn-golden," the *blonde fulvide*, the incandescent ("carrotty"), the *flavescent* or sulphur-hued, the *beurre frais*, the *fulvastré* or lion's mane, and

the *rubide* or mahogany, Raphael's favourite tint. The abominable Hallgerda's hair is the type of Icelandic beauty; it was "soft as silk and so long that it came down to her waist." Seldom straight and lank, the *chevelure* is usually wavy, curling at the ends, when short cut, as in England. The women have especially thick locks, which look well without other art but braiding, and many of the men have very bushy hair. As in the negro, baldness does not appear till a late age, and perhaps the Húfa (cap) by exposing the larger part of the surface acts as a preservative; old men and women, though anile beauty is very rare, are seen with grey and even white locks exceptionally thick. Canities comes on later than in Scotland and Sweden, yet scant attention is paid to the hair beyond washing at the brook. The body pile is as usual lighter coloured.

The figure is worse than the face, and it is rendered even more uncouth by the hideous swathing dress. The men are remarkable for "champagne-bottle (unduly sloping) shoulders," "broad-shouldered in the backside," as our sailors say. They are seldom paunchy, though some, when settled in warmer climates, develop the *schöne corpulenz* of the Whitechapel sugar-baker. They have the thick, unwieldy trunks of mountaineers, too long for the lower limbs—a peculiarity of hill-men generally, which extends even to the Bubes of Fernando Po. The legs are uncommonly sturdy; the knees are thick and rounded, an unpromising sign of blood; the ankles are coarse, and the flat feet are unusually large and ill-formed, like the hands, a point of resemblance with the Anglo-Saxon pure and simple. Hence they are peculiarly fitted for their only manly sport, besides skating and shooting, "Glímu list:" this wrestling has a "chic" of its own, though very different from the style of Cumberland and Cornwall. The gait, a racial distinction, is shambling and ungraceful, utterly unlike the strut of Southern Europe and the roll of the nearer East; the tread is ponderous, and the light fantastic toe is unknown. This "wobble" and waddle result from the rarity of walking-exercise compared with riding and boating, and from the universal use of the seal-skin slipper. The habit becomes a second nature: all strangers observe the national trick of rocking the body when sitting or standing to talk, and

they mostly attribute it to the habit of weaving, when it is practised by thousands who never used a loom. The feminine figure is graceful and comparatively slender in youth, like the English girl of the "willowy type," but the limbs are large and ungainly. After a few years the "overblown" forms broaden out coarsely. Women do not draw the plough, as in Greece and parts of Ireland, but they must take their turn at all manner of field-work. The *Frauen-cultus*, said to be a native of Europe north of the Alps, has not extended here, at least in these days.¹ Hence the legs and ankles, hands and feet, rival in size and coarseness those of the men. As wives, they would be efficient correctives to the "fine drawn" framework and the over-nervous diathesis of southern nations. Cold in temperament, they are therefore, like the Irish, prolific, which may also result from the general fish-diet. Dr Schleisner, who resided in Iceland under the Danish Government, has proved the temperature of the blood to be higher than amongst other races. Assuming the average of Europeans at C. 36°·5 (= F. 97°·7), nine persons out of twelve exceeded C. 37° (= F. 98°·6): the maximum was C. 37°·8 (= F. 100°); the minimum was C. 36°·5, and the average was C. 37°·27 (= F. 99°·09).²

Intermarriage is so general that almost all the chief families are cousins; yet among several thousands the author saw only one hunchback, two short legs, and a few hare-lips. It is almost needless to say that the common infanticide of pagan days is now unknown, and that we must seek some other cause for the absence of deformity. It may be found, perhaps, in the purity of unmixed blood, which, mentioning no other instances, allows consanguineous marriages to the Jews, the Bedawin Arabs, and even to the Trasteverino Romans;³ whereas composite and

¹ It appears probable that the reverence paid to women by the ancient Germans and Gauls arose from what Tacitus calls "some divine and prophetic quality resident in their women;" from the superstitious belief that the weaker sex was more subject to inspiration, divination, second sight, and other abnormal favours of the gods. The *Frauen-cultus* of the present age, which in the United States has become an absurdity, would be the relic and survival of this pagan fancy.

² The author cannot say whether due care was taken when making these observations. Amongst Englishmen, when the thermometer held in the mouth exceeds 8°·5, there is suspicion of fever.

³ Marquis Massimo d'Azeglio observed this fact among the pavians and the fine-carters, who form almost a separate caste of the Trans-Tiber population.

heterogeneous races like the Englishman, the Spaniard, and especially the New Englander, cannot effect such unions without the worst results—idiocy and physical deformity.

As regards uncleanness in house and body, it may be said that the Icelander holds a middle rank between the Scotchman and the Greenlander, and he contrasts badly with the Norwegian of modern days. Personal purity, the one physical virtue of old age, is, as a rule, sadly neglected. Concerning this unpleasant topic, the author is compelled to offer a few observations. The old islander could rival the seal: his descendant, like the man of Joe Miller, will not trust himself in water before he can swim. The traveller never sees man or woman in sea, river, or brook, though even the lower animals bathe in hot weather. It is a race *abominantes aquam frigidam*, and, even as pagans, their chief objection to Christianity was the necessity of baptism: they compounded for immersion in the Laug or hot spring,¹ and the latter is still, though very seldom, used. Washing is confined to the face and hands; and the tooth-brush is unknown like the nail-brush: the basins, where they exist, are about the size of punch-bowls. Purification by water, after Moslem fashion, is undreamed of. Children are allowed to contract hideous habits, which they preserve as adults; for instance, picking teeth, and not only teeth, with dinner-forks. Old travellers, who perhaps had not observed the cellarman in the wine vaults (London Docks) bore a hole and blow through it to start the liquor, record a peculiarly unpleasant contrivance for decanting the milk-pan into narrow-necked vessels; the same, in fact, adopted by the Mexican when bottling his "Maguey;" and "Blefkenius" alludes to a practice still popular amongst the Somal: it is only fair to own that the author never saw them. The rooms, and especially the sick rooms, are exceedingly stifling and impure. Those who venture upon an Icelandic bed may perhaps find clean sheets, but they had better not look under them. The houses, except in the towns, or the few belonging to foreign merchants, have no offices, and all that have, leave them in a horrible condition: there is no drainage, and the backyard is a mass of offal. Such

¹ Not always, as the common river-name *Thvát-t-á* (wash or dip-water) proves.

is the effect of climate, which makes dirt the "poor man's jacket" in the north; which places cleanliness next to godliness in the sub-tropical regions, and which renders personal uncleanness sinful and abominable to the quasi-equatorial Hindú. Nor must we forget that the old English proverb "Washing takes the marrow out of a man," still has significance amongst our peasantry.

§ 3. CHARACTER.

Appreciations of national character too often depend upon the casual circumstances which encounter and environ the traveller; and writers upon Iceland differ so greatly upon the matter, that perhaps the safest plan will be to quote the two extremes.

The unfriendly find the islanders serious to a fault; silent, gloomy, and atrabilious; ungenial and morose; stubborn and eternally suspicious; litigious and mordant; utterly deficient in adventure, doing nothing but what necessity compels; little given to hospitality; greedy of gain, and unscrupulous in the *quocumque modo rem*. "Gaiety," says one, "seems banished from their hearts, and we should suppose that all are under the influence of that austere nature in the midst of which they were born."

Henderson (i. 34), who represents the bright side of the picture, enlarges upon their calm and dignified, their orderly and law-abiding character; he denies their being of sullen and melancholy disposition; he was surprised at the degree of cheerfulness and vivacity prevailing among them, and that, too, not unfrequently under circumstances of considerable external depression. They are so honest that the doors are not locked at night in their largest town; strangely frank and unsophisticated; ardent patriots and lovers of constitutional liberty; fond of literature, pious, and contented; endowed with remarkable strength of intellect and acuteness; brimful of hospitality, and not given to any crimes, or indeed vices, except drunkenness.

And, upon the principle of allowing the Icelander to describe himself, we may quote as an exemplar of character the following model epitaph: "To the precious memory of A., S.'s son, who

married the maiden C., D.'s daughter. He was calm in mind; firm in council; watchful, active, his friends' friend; hospitable, bountiful, upright towards all, and the affectionate father of his house and children."

The truth is, that although isolation has, as might be expected, preserved a marked racial character, the islandry are much like other Northmen. During the pagan times, and indeed until the sixteenth century, we read "their chief characteristics were treachery, thirst for blood, unbounded licentiousness, and in veterate detestation of order and rule;" but we shall hardly recognise the picture now. They are truthful, and they appear pre-eminently so to a traveller from the south of Europe, or from the Levant. They have a sense of responsibility, and you may believe their oaths: at the same time, they look upon all men as liars, and they are as *desconfiados* (distrustful) as Paulistas (Laplanders—a mental condition apparently connected with certain phase of civilisation. Compared with the sharp-witted Southron, they are dull and heavy, stolid and hard of comprehension as our labouring classes, without the causes which affect the latter. They cleave like Hindús to the father-to-son principle, and they have little at home that tempts either to invention to innovation, or to adventure. They are a "polypragmat peasantry;" the love of lawsuits still distinguishes the Normans in France after ages of separation from the parent stock. Even in private debate they obstinately adhere to the letter, and shut the spirit: an Icelander worsted in argument takes up some verbal distinction or secondary point, and treats it as if it were of primary importance. An exaggeration of this peculiarity breeds the *Querelle d'Allemand*.

Another peculiarity of the islandry is a bitterly satirical turn of mind, a quality noted of old. We rarely meet with a "Thork Foulmouth," but we see many a Skarphédinn who delights and who takes pride in dealing those wounds of the tongue which according to the Arabs never heal. An ancient writer gives a fair measure of what could be done by Níðvísur¹ (lampoon:

¹ These satirical songs are known to the Greenlanders, who thus satisfy their malice, "preferring to revenge even than to prevent an injury." Yet, the Icelanders have a proverb, "Let him beware, lest his tongue wind round his head."

which never spared even the kings. They threatened Harold the Dane to write as many lampoons upon him as there were noses¹ in Iceland (*Ólaf Tryggvason's Saga*, xxxvii.), and escaped by magic from an invasion. Nor did they spare even the gods; for instance, Hjalti sings (*Burnt Nial's Saga*):

"I will not serve an idle log,
For one, I care not which;
But either Odin is a dog
Or Freya is a ——."

The term "Tað-skegglingar," Dung-beardlings, applied by a woman to certain youths whom she hated, caused a small civil war. When Dr Wormius was Rector Magnificus of the Copenhagen University, an Icelandic student complained of a libellous fellow-countryman. The poet, when summoned, confessed the authorship; contended that it contained no cause of offence, and, with characteristic plausibility and cunning, talked over the simple Vice-Chancellor. Thereupon the plaintiff in tears told the Rector that his fair fame was for ever lost, explaining at the same time the "fables, figures, and other malicious designs under which the malignity of the satire was couched;" and even the "spells and sorceries" which threatened his life. Thereupon Dr Wormius took high ground, and by citing certain severe laws against witchcraft, persuaded the poet to tear up his satire and never to write or to speak of it again. "The student was ravished with joy," because he had made his peace with a pest who could exceed in power of annoyance Aristophanes, Horace, and Juvenal.

The courage, steadfastness, and pertinacity of the Iclander are proved by his annals, and if he does not show these qualities in the present day, it is because they are overlaid by circumstances. As regards the relations of the sexes, we find nothing in the number of illegitimate children which justifies the poet in singing of the "moral north."² Iceland in fact must be reckoned amongst the

¹ Usually but erroneously translated "headlands," instead of "head of men."

² The popular assertion, "nothing can be more natural than that female chastity should be more prevalent in a northern than in a southern climate," is simply a false deduction from insufficient facts. It is a subject far too extensive for a footnote; we may simply observe that the Scandinavians have never been

“*Littora quæ fuerunt castis inimica puellis;*”

and although she has improved upon the reckless licentiousness of the Saga days, ichthyophagy and idleness must do much to counterbalance the “sun-clad power of chastity.” The “unsophistication” of the race is certainly on the wane; there are doubtless

“Honest men from Iceland to Barbadoes,”

but the islander is pre-eminent for a “canniness” which equals, if it does not exceed, that of the Yankee, the lowland Scotch, and the Maltese. And what he gains he can keep with a most tenacious hold.

The statistics of crime in Iceland are peculiarly unsatisfactory. As the Journal will show, many a man goes free who would be prosecuted and severely punished farther south. Traveller after traveller has asserted, “it is in a large measure to their widespread home education that we must attribute the fine moral character of the Icelanders;” and capital has been made of the fact that the old stone-prison became the Government House. The Danish Parliamentary Reports (p. 255, vol. xlvii. for 1837-1838) contain details concerning the number of persons arraigned and convicted, sentenced, and acquitted by the tribunals. During a period of seven years (1827-1834), there were but 292 indictments on the island; of these 216 ended in conviction; 20 cases were suspended; 32 were dismissed, and 56 were acquitted. Of the 216 convictions, 79 were for “carnal offences;” 86 for larceny; 15 for transgressing sanitarial laws; 5 for murder, and 31 for various offences, such as false-witness and receiving stolen goods. The last statistics in 1868 give 46 criminal cases (37 males, 9 females) for the whole island, and in 37 conviction and sentence followed; 34 were for theft, 1 for forgery, 2 for adultery, besides 29 were fined for disturbance of the peace and for offences against public order. There were also 57 cases of adultery and seduction; 24 of these were fined, and in 33 cases the fine was remitted (*Skýrslur um Landshagi*, v. 193, 1871).

distinguished for continence, nor are the northern more moral than the southern Slavs. In fact, the principal factor of feminine “virtue” seems to be race not climate.

The suicide,¹ arson, and infant exposure of the republican and pagan ages are no longer heard of; vagrancy is hardly an offence; the state of the country prevents technical robbery; and forgery does not belong to its present state of civilisation. It is peculiar that almost all classes believe in and fear a tribe of outlaws or bandits who occupy the deserts of the interior—these are the days of Robin Hood come again.

§ 3. SOCIETY.

The social condition of Iceland has been compared with Lord Macaulay's pictures of the Highlanders a hundred and fifty, and of the English three hundred years ago—the differences are more salient than the points of resemblance. The proverb "Heimskt er heimaðlia barn" (homely is the housebred child) produced a habit of voyaging and travelling; and wide wandering made the homes centres of refinement: the same practice in the Hebrides astonished Dr Johnson. Unhappily it is now no longer the popular habit; it has gone the way of the manly exercises, bowls, quoits, swimming, and practising weapons, which distinguished the heroic age. With much aristocratic feeling there is no aristocratic order properly so called; the earl, the baron, and the clan-chief are equally unknown; whilst the parson, like the priest in Slavonic countries, is the modern pattern to the Thane or Churl. As in the United States, there is no gentlemen class except the liberal professions, and even the clergy until the present generation were farmers and fishermen, labourers, mechanics, and so forth, often poorer and shabbier than the laity. The official circles are too small to form a *beamten-kreis*; the squirearchy is represented by the franklins or peasant lairds, who no longer correspond with the ancient Udallers; the merchants are chiefly foreigners.

¹ "To go by the way of the rock" was the old pagan euphuism for self-destruction; and the modern Hindú, as the Girnár Cliff shows, preserves the practice of "Altestupor" and "Odin's Hall." Suicide is now, like the duello, extinct, and the few cases recorded in late history are looked upon as phenomena. We remark the same rarity of self-destruction both in Scotland and Ireland, a wonderful contrast to England, which, again, despite its ill-fame, shows favourably in this matter by the side of France.

Under these circumstances we can hardly expect a general refinement, nor the particular phase which proceeds in men whose life consists in adorning society, and women to wear diamonds and to be beautiful. Yet the Icelandic franklin or pauper, has none of the roughness and rudeness which we remark in the manners of the Canadians and of the lowland Scotch. "No tax is levied upon civility," and mutual regard for one another's feelings, though sometimes carried to an inconvenient extent, is the essence of politeness. The intercourse is rather ceremonious than plain and easy," and travellers deride such quaint mixture as "Lie, my blessed (or beloved) friend!" The abuse of mutual regard is a servile fear of making enemies; they often take up with injuries, as the Brazilian submits to be plundered by a richer neighbour, and the Syrian swallows his wrath rather than offend one who may some day become a Pasha.

The Icelander is a large-brained and strong-brained essentially slow and solid in point of intellect, and capable of high culture, of wide learning, and of deep research. A lesson is taught by the whole of his literature; although the muse no longer sings of love and war, she is by no means silent—her turn is now the theological, the philological, and the scientific. Arngrímur Jónsson well describes his countrymen "Ad totius Europæ res historicas lynceæ." But the Icelander never attains his full development except out of his country, and this condition dates from past ages. Through the north, from England¹ and Val-land (France and Italy) to Mikligarður (Constantinople),² he has distinguished himself and proved

"That every country is a brave man's home."

¹ The reader has only to remember how much of Britain was Danish to understand the Snorra-Edda's express statement about Icelanders and English speaking the same tongue, "Vér erum einnar tungu;" and Bartolin (*Antiquitæ Danicæ*), "Eademque lingua (Norvegica seu Septentrionalis) usurpabat Saxonicum, Daniam, Sueciam, Norvegiam, et partem Angliæ aliquam."

² Their extensive travels gave them peculiar names for peoples and places which are often somewhat puzzling. "Thýfskr," a German, and German, Russian, are easy; but Samverskt (a Samaritan) is not so plain. Thus we have "Knea" for Europe; "Hvítármannaland," or white man's land, and "et mikla," Ireland the Great (the Irlanda el Kabíreh of Edrisi in the tenth century), for South America; "Suðurláfa" (*i.e.*, southern half), for A

Abroad, his emulation is excited, his ambition is roused, and his slow sturdy nature is stirred up to unusual energy. At home he can command no serious education, nor can he escape from the indolent and phlegmatic, the dawdling and absolutely unconditioned slowness of the country, where time is a positive nuisance, to be killed as it best can. In Iceland the author met several Danes, but only two Icelanders, who spoke good English, French, or German; it is far otherwise in Europe, and especially, we need not say, in England.

As the notices of emigration will show, Iceland, like Ireland, is instinctively seeking her blessing and salvation, the "racial baptism." One traveller records the "inexpressible attachment of the islanders for their native country." Their *Sehn sucht* in a mountainless land, and the time-honoured boast, "Hið besta land solin skfnr uppá" (Iceland is the best land upon which the sun shines).¹ So Bjarni Thorarensen sings, "World-old Iceland, beloved foster-land, thou wilt be dear to thy sons, as long as sea girds earth, men love women, and sun shines on hills." But all the people of all the poorest countries console themselves in the same way, and geographical ignorance confirms an idea which to the traveller becomes simply ludicrous: more-

"Great Sweden" for Eastern Russia; "Svalbarði" (discovered 1194), for Scoresby's Liverpool Coast (?); "Bjarmaland" for Permian, the land beyond the North Cape; "Sætt" for Sidon; "Njörfa-fjörð" for the Straits of "Gib"; Há-sterun for Hastings; and "Katanes" (boat naze), for Caithness. Some names are of ethnological value; for instance, "Bretland" for Wales; while Vendill or Vandill, the northern part of Jutland, preserves the name of the Vandals and the origin of Andalusia; and Garða-riki or Garða-veldi, the empire of the Garðar or Castella, tells us how the Russian empire was founded. So Suðr-menn (Germans) opposed to Northmen (Norðmenn), preserves the tradition of original consanguinity. Others are useless complications, as Engils-nes, the Morea, and Ægisif (*Ἔγλα Σοφία*). The travestied names of persons are sometimes interesting, e.g., Elli-Sif (Scot. Elspeth) is Elizabeth, probably confounded like Ægisif, with Sif, the golden-haired wife of Thor, who lives in our *gossip*. Icelanders are not answerable for the mistake so general amongst foreigners which makes Níðar-óss (Oyce or ostium of the Níð River) an *alias* of Throndhjem, of old Thrándheimr, when it is the name of the ancient city occupying the position of the present town. The "Antiquités de l'Orient" (par C. C. Rafn, Copenhagen, 1856) well shows how Icelandic names were applied to the Byzantine empire, e.g., Ἐσσοιπῆ (*ei sofa*, not to sleep), given to the first bar of the Dnieper; Οὐλοφορσι (Hólm-fors or islet-force) to the second, and so forth.

¹ "This assertion of travellers never had any foundation in fact," says Mr Jón A. Hjaltalín, yet it is quoted by Henderson, the least imaginative, and, in such matters, the most trustworthy of men; and the Icelandic proverb says, "One's own home is the best home."

over, northerners, it need hardly be said, gain more by removal and therefore emigrate more readily than southerners. The latter express themselves unmistakably :

“ Ἄνδρι γὰρ τοι, κἄν ὑπερβάλλῃ κακοῖς
οὐκ ἔστι θρῆψαντος ἡδίων πέδον.”

And “Ulysses ad Ithacæ suæ saxa properat, quemadmodum Agamemnon ad Mycenarum nobiles muros; nemo enim patri amat quia magna, sed quia sua” (Seneca), They are happy home; why should they leave home?

The Icelander cannot be called degenerate. He is what he is. But whilst the world around, or rather beyond him, has progressed with giant strides, he has perforce remained stationary. His mother country forbids him to decuple the human hand and arm by machinery; the enormous water-power of his river is useless, and thinness of population bars out the appliances of civilisation—how can he expect to hold a fair place in the struggle of life? Moreover, like another small and heroic kingdom in modern Greece, Iceland has suffered from ages of virtual foreign dominion, not to say tyranny, and from restrictions of trade, which, small as items, combined to form a system of grinding oppression. His brightest days were those when, against the Goth and Hun, the Arab and the Tartar, he devoted himself to plundering the wealthy weak. But the times for that nomad incursions are past, until at least China can renew them, and he hopelessly sank when no longer able to harry the southern islands, to break down London bridge, to plunder and massacre Luna, and to spread

“ Beneath Gibraltar to the Lybian sands.”

His future career is in his own hands, and improvement can be sought in extended stock-breeding, in better use of fisheries, and in extensive emigration. With free institutions will bring to the task the same high and steadfast spirit which distinguished him in his prime. Anthropologists justly object to the popular theory of a nation degenerating, unless, indeed, there be a mixture of foreign and inferior blood; but they find everywhere in history the decline and fall of races, whenever

stronger neighbouring peoples rise to the same or to a higher level of civilisation. The Roman and the Athenian still greatly resemble the conquerors of Europe and Asia, but in those days the Gauls and the Germans, the Scandinavians and the Britons, were mere barbarians, uneducated and undisciplined. Now all are on a level, and, as we saw in the late Franco-Prussian war, the physically strongest wins—the north beats, and will ever beat, the south.

The islanders, like their brother Scandinavians and the Teutons, had no idea of towns. We may apply to them the description of Tacitus (Germ., c. xvi.), “Nullas Germanorum populis urbes habitari satis notum est . . . colunt discreti ac diversi, ut fons, ut campus, ut nemus placuit.” In Norway the first town, Níðar-ós, *par excellence* called Kaupang, was built by the two Olaves (Ó. Tryggvason or Trusty-son, and Ó. Helgi the Saint) in A.D. 994-1030; the real founder of cities was Olave the Quiet (1067-1093). Thus in old Norse codes the Town-law is an appendix to the Land-law. As late as 1752, Reykjavik was a single isolated farm.

It is strange how little the style of Iceland life has altered since the time (1767) when M. de Kerguelen wrote his short and lively sketch—it seems to be fixed like the language. As now, the island was divided into four provinces, of which each had eighteen to twenty counties, and every county fifteen to sixteen parishes. The Sýslur were under bailiffs, all subject to the grand bailiff (Governor), and to the sovereign council (Althing). The chief civil officer and the royal seneschal (treasurer), who collected the taxes, reported to a governor-general residing at Copenhagen—he is now represented by the minister for Iceland. There were two bishops, one for the south (Skálholt), and another for the north (Hólar); there is at present only one in the capital, but the people would willingly see, and will see, the older status restored.

The Iceland farm-house¹ was then, as now, a set of buildings scattered over the “tún,” or infield. The abode was entered by

¹ As every traveller, from Uno Von Troil downwards, has given a plan and sketch of the Bær, the reader need not be troubled with them. The group of buildings composing the actual homestead is invariably built in a row: the front

a passage (Bæjar-dyr) six feet wide, with a cross-raftered roof and this "Skemma" was lighted by windowlets (Skjágloggi) "Himna" (membrane), transparent parchment of cattle's bladder by Likna-belgur, ewe's chorion; by Vats-belgur, sheep's amnion or by Skæna, inner membranes of the stomach, a little more opaque, or, rarely, by bulls' eyes of glass. They were not the ornaments in the eighteenth century which had no light—

"Save one dull pane, that, coarsely patched, gives way
To the rude tempest, yet excludes the day."

Fronting the common entrance was the Baðstofa (public room, literally meaning bathroom), measuring fourteen ells by eight, in which the household worked at dressing wool and weaving cloth. It led to a bedroom, where the house master and mistress slept, the children and servants occupying the garrets and cock-lofts. On each side of the lobby were two rooms, the kitchen (Eldstofa) opposed to the stofa or gynæceum, and the store-room or (our "bower," and the Scottish "byre"); the dairy and the gun chamber (Gestaskáli). At present the entrance is usually flanked by the kitchen, and at right angles there is a covered gallery or tunnel, upon which the doors open: thus the rooms are wholly dark, even when they lack glass, which is rare.¹ The outhouses (Úti-hús) were the stables, the stores (Geymslu-lugar), the byres, the sheep pens (Fjár-hús), the forge, and, sometimes, the carpenter's shop. The house (Bæjar-hús or Heima-hús) was built of planks, which, coming from Copenhagen, were too expensive to be used as flooring. The only fire was in a stove; fuel was of turf and cow-"chips,"² and the interior was n

(Hús-bust) faces south, towards the sea or the river, if in a valley, and the front is called "Stétt;" the open space before it, "Hlað;" the building parted by a lane (Sund); the approach is termed "Geilar" or "Tröð," and the whole is surrounded by the Húsa-garðr, a dry-stone dyke.

The Norse Skáli, or Hall of classical days, whose rude and barbarous manerence was the result of successful piracy tempered by traffic, has clean vanished there is not a trace of one upon the island. A ground-plan, section, and elevations are given in Mr Dasent's "Burnt Njal," but it is hard to say how much came from the fertile brain of the artist, Mr Sigurðr Guðmundsson. It was probably about as "desirable" a "residence" as the old Welsh manor-house, its stagnant moat and its banks or walls of earth.

¹ The author well remembers that at Hyderabad, in Sind, only one palace had the luxury of glass, when we first occupied the city.

dry—the unrheumatic traveller will not find that damp of which the many complained. The furniture consisted of a table and chests acting chairs; Niels Horrebaw, the Dane who saw everything *en beau*, added wainscots, glasses, and a variety of luxuries. Johann Anderson, afterwards burgomaster of Hamburg, by no means wore the rose-coloured spectacles.

“The people appeared mild, good-natured, and humane, but distrustful and *addicted to drink*. They were very fond of chess, and good coasting sailors, *but not very courageous*”—no wonder, considering their craft! They soon became infirm; they were old at fifty, and they rarely reached eighty. “Landsarsak” (Landfar-sótt¹) was the name given to all fatal illnesses usually arising from scurvy, wet feet, and want of exercise. Their hay was not housed, but heaped in stacks two yards square, upon raised mounds, at short distances, and covered with sloping turf to lead the rain into surrounding ditches. In summer food was of cods’-heads, boiled like all other provisions: in winter the peasants ate sheeps’-heads kept in (fermented) vinegar of sour milk (Sýra), or in juice of sorrel (Súra),² and other plants, the mutton being sold. Bread was not the staff of life, being eaten only on high days and holidays, that is, at births, marriages, and deaths: the richer sort baked cakes, broad and thin, like sea biscuits, of black rye flour from Copenhagen.

The men dressed like sailors in breeches, jackets acting coats, and vests of good broadcloth, with four to six rows of buttons, always metal, copper or silver. The fishermen wore overalls, coarse smooth waistcoats, large paletots of sheepskin or leather, made water-proof by grease or fish-liver oil; leather overalls, stockings, and native shoes. The women were clad in jackets and gowns, petticoats and aprons of woollen frieze, over which was thrown a “Hempa,” or wide black robe, like a Jesuit frock, trimmed with velvet binding. The wealthy added silver ornaments down the length of the dress, and braided the other articles

¹ Sótt is applied to physical, Sút to mental, sickness.

² More will be said concerning the several varieties of oxalis, which the people now seem to despise. Both wood-sorrel and meadow-sweet (*Spiræa*) were used by the poor of Ireland to heal ulcers (Beddoes, p. 47, on the Medical Use and Production of Factitious Airs). Uno Von Troil (p. 108) gives a long list of the popular anti-scorbutics.

with silk ribbons, galloon, or velvets of various colours. The ruff was a stiff collar from three to four inches broad, of very fine stuff, embroidered with gold or silver. The head-dress was a cone like a fool's-cap or sugar-loaf, two to three feet tall, kept in place by a coarse cloth, and covered with a finer kerchief. The soleless shoes of ox-hide or sheep-skin, made by the women out of a single piece, were strapped to the instep.

The wives were not so strong as the husbands, yet they had the hardest work in haymaking. Their labour was difficult, and they "kept their beds for a week." At baptism a bit of linen dipped in milk was placed in the babe's mouth, and the child was breeched at the end of two years.

§ 4. THE FAMILY.

Population was checked by not allowing marriage to a man who did not own a hundred of-land or a six-oared boat in trim: this wholesome law, however, is becoming obsolete as the ferocious old code which prevented the propagation of paupers. The number of births is about 2940 to 2020 deaths per annum: thus the annual increase is 920, but the mortality of children is, or perhaps we should say was, disproportionate. In 1858, 489 upon the island died between the ages of 1 to 5, and 68 between 5 to 10—a total of 557. During the same year the number of illegitimate to legitimate births was 15:100: this figure appears pretty constant, but rather on the increase than the reverse. In the early nineteenth century, Hooker gives 383 illegitimates in 2516 births = $15\frac{1}{4}$ per cent. = nearly to 1:7—a high average, which he explains by the huddling together of families. Mr Vice-Consul Crowe (1866) gives 1:6.9 of births. Statistics of the years between 1860 and 1870 give 20:100, or 1:5. The Consular Report of 1870-71 asserts that "in every 100 births there were 17 of illegitimate children," and shows the following figures: 1866, 17.7; 1867, 16.7; 1868, 17.2; 1869, 16.2; 1870, 16.8.

Of 2937 children, only 48 were born (1858) of mothers under 20; 23 were legitimate, and 25 were not: 458 had mothers aged

20 to 25 : 933, of whom 764 were born in wedlock and 169 were not, had mothers aged 25 to 30 : the mothers of 703 new-born children were 30 to 35 years old ; those of 549, from 35 to 40 ; those of 221 from 40 to 45 ; and, lastly, those of 25, from 45 to 50.

In the same year, 3 men committed suicide ; 65 were drowned ; 17 perished by accidents, and 1939 died of disease. The smallest number of deaths (128) occurred in February, the coldest month ; and the greatest number (205) in July, the warmest.

There is little of novelty in the religious ceremonies accompanying baptisms, marriages, and funerals, which are those of the Augsburg rite ; but there is something to say upon the subject of names. Until the middle of the last century, the surnames, as in olden Kent, were all patronymics or matronymics ; such was the ancient fashion of Europe, especially of England and Germany, a custom still preserved by the great Slav race (*vich* or *ich*), and by the modern Greeks, who prefer *-poulo* and who almost ignore the ancient *-ides*. It is notorious how Linne (Linnæus), the prince of naturalists, was prompted by the growing use of family names to devise the generic and specific distinctions, which superseded a system cumbrous and intricate as that of a Chinese dictionary. In very thinly populated countries, where every man knew his neighbour, it was possible to be called Jón Jónsson¹ and Caroline Jónsdóttir, but so rude a plan would not serve elsewhere. We still find it in the country parts of Iceland, and, curious to say, the people are returning to the old fashion of taking the paternal name as surname. The matronymic, *e.g.*, Sveinn Ástriðarson, in early times was assumed when the mother outlived the father : it was never a mark of base blood ; as amongst the Spaniards, where *El Hijo de ruin padre*, *Toma el apelido de la madre*.

In 1855, a curious official paper was published under the title "*Um Mannahæiti á Íslandi*." It shows that the island has only 63 native surnames, and 530 men's and 529 women's Christian names : no wonder that "nicknames" are common as amongst

¹ Of course the first sibilant, the sign of possession, is not used when the noun is otherwise declined. For instance, Jón Arason, often written by foreigners Arason, is the son of Are, whose oblique case is Ara ; yet there are popular exceptions, *e.g.*, Bjarnarson (pron. Bjatnarson), son of Björn, is vulgarly pronounced, and even written, Björnsson.

Moslems and Brazilians. Hence local cognomens are also much used, as Peter of Engey, and Jón of the "Strönd," *i.e.*, the coast from Hafnafjörð to Keblavik. The popular address would be Herra Bonde (Mr Farmer), Herra Hreppstjóri (Mr Constable), or "Good day, comrade!" sounding very republican, and accompanied by a resounding kiss.

Every fifth man appears to affect, in one of five forms, the fourth Evangelist. Jón (Johns, 4827), Jóhannes (498), Jóhan (494), Hannes (154), and Hans (80), making a total of 5053. On the other hand, whilst Odin has disappeared, Thór, in compounded shape, enters into 2010 male and 1875 female "Christian" names = 3885. Guðrún¹ numbers 4363; Marguerite 1654; yet Marias, elsewhere so common,² are only 384; and Rosas decline to 269. Amongst historical names, we find 1: Sæmundr; of Biblical names, even the quaintest and the most Hebraical, such as Samson, Samuel, and Solomon, Jael, and Judith, are here common as in all Protestant countries: Catholics more wisely avoid them, leaving them to their original Jewi owners. The western counties affect the strangest terms, such as Petra, Petrea, Petrina, Petulína, and Tobía, a feminine. Throughout the island there is arising a new fashion of combined names almost as ingenious as that of the Latter-Day Saints. For instance, the daughter of Brynjólfur by Thórdís will be called Bryndís; the son of Sæmundr by Elina is named Elínmun. Of course nothing can be more barbarous, but what does "fashion care for barbarism?"

In pagan times the wife was often assisted by Friðlas or supernumeraries, and, though she was liable to be exchanged or loaned, as was the case amongst the polished Hindús, the Gree

¹ Thus the islanders preserve the memory of a "beautiful fiend," one among many, who, after a very human fashion, began life as a coquette, and ended it a *dévoté*, being the first to learn psalm-singing, and to take the veil in the convent. This hyperborean Ninon de L'Enclos deserves forgiveness for one of the cleverest sayings uttered by woman—a revelation of its kind. When asked which of her half-a-dozen lovers and husbands she preferred, her wise and witty answer was, "Them var ek verst, er ek unnti mest"—"Whom I treat worst, him I loved most;" alluding to Kjartan Ólafsson, murdered by her behaviour. In old days, Guðrún and John answered to the "M. or N." of our Catechism and to "those famous fictions of English law, John Doe and Richard Roe."

² This is probably a relic of early ages, when "Maria" was a name too much revered for general use.

and the Romans, she could put away her baron for so slight an offence as wearing a chemisette, or any other article of feminine attire. The simple process was to declare before witnesses that they twain ceased to be one flesh. The marriage tie sat almost as lightly upon Icelanders as upon Scandinavians generally, even in the Catholic days: since the introduction of Lutheranism, it has, as we might expect, been still less binding.¹ We may therefore conclude that a certain love of change is in such matters a characteristic of the race. At present every *peine infamante* allows divorce; and incompatibility of temper, shown by three years of separation, with the consent of the mayor, is a plea of sufficient force to claim from the Minister of Justice at Copenhagen freedom *a mensd et thoro*. Both parties are able to remarry, and they may be reunited, unless they have misconducted themselves whilst living apart; in this case they must obtain a dispensation from the chancellerie of the empire.

§ 5. DISEASES.

It is calculated that the yearly deaths at Reykjavik average 59-60, and this figure, if correct, is high for the population, in 1870 only 2024, now at most 2500. For instance, the mean of London being 19 per 1000, and all England 20·8, to say nothing of Glastonbury, Reykjavik, with the most favourable calculations, would be 24.² With more attention to hygiene, the headquarter village should not show a death-rate exceeding 17 : 1000—the beau-ideal of the modern sanitarian.

The list of diseases is so extensive that little beyond the names can be mentioned. They result mainly from the utter absence of hygiene; from want of cleanliness; from bad living, hardship, and fatigue; and from exposure to cold, especially after living in close and heated rooms. The latter is a fertile source of ill-health: so at St Petersburg the higher classes suffer from

¹ Yet the Polygamia Triumphatrix (Liseri) of Lund, A. D. 1682, was publicly burned at Stockholm.

² We may add, Paris, 23; Berlin, 25; Panama, 26; Bombay, 27; New York, 28; Glasgow, 34; Madras, 35; Vienna, 36; and Rome the same, if not more.

the maladies of Calcutta, hepatalgia, jaundice, and spleen-enlargements; and, after a certain number of "seasons," they must seek health in the Crimea, or in Southern Europe. Hence the fondness of Icelanders for sour food which equals that of the acid-loving citizens of Damascus. The pudding of the island is Skyr, which the Dictionary wrongly translates "curdled milk, curds," and which Rafn derives from the Sanskrit Kshira (milk): it is the Khir of Sind and Belochistan; the Laban of Arabia; the Dahin of Hindostan; the Saure-milch of South Germany; the Kisalina of Styria and Slavland, and the Hattelkit or Corstorphine Cream of Scotland.¹ Icelanders eat it with sugar, which gives it a sickly taste. Hence the use of acid butter; of Mysuost, or whey cheese, brown, and not unlike guava cheese; of Valle, fermented whey, somewhat like Koumiss; of Sýra, or sour whey, acting small beer, and used in pickles like vinegar; of Súr mjólk, or sour milk; and of Blanda, the favourite drink, half whey and half water, into which blueberries, and black, crake, or crow berries (Icel. Krækjuber, *Empetrum baccis nigris*) are sometimes infused. And hence, finally, the use of Korn-súra (*Polygonum viviparum*) *Cochlearia (officinalis and Danica)*, trefoil (*T. repens*), *Sedum Acre* (house leek), and other social plants, which are considered antiseptic and antibilious.

The skin diseases are alopecia, herpes, and psora inveterate as on the Congo River. "St Anthony's fire" was cured by binding live earth-worms upon the part afflicted. Scurvy (Skr-bjúgr) results from "thinness of blood," induced by want of proper nourishment, especially by the overuse of salt and dried meat and fish: the increased growth of vegetables, not to speak of medicines, has much modified its malignancy. Measles and scarlatina are rare, but periodical attacks of smallpox, which often appear in history,² still compel the capital to convert one

¹ Thus Skyr is a congener of the Persian "Shír" and of the Slav Sir (cheese). The first stage is the "run-milk," the second is the "hung-milk" (because suspended in a bag) of the Shetland Islands. Everywhere it is differently turned; by sour whey in Iceland, by buttermilk in Scotland, and by rennet and various milks in Asia and Africa. No milk-drinking nation drinks, as a rule, fresh milk. The Icelanders want the manifold preparations known to the Scotch-Scandinavian islands.

² Dr (afterwards Sir Henry) Holland introduced, or rather first brought, the vaccine virus.

of the best houses into an hospital. In 1872, it was occupied by French fishermen only; there was no case among the natives. The author did not see a single instance of the protean and the most cosmopolitan of diseases, whose various phases are known as *Lepra Arabum*, *Leuce*, and *Mal Rouge*; *Leontasis*, or *Facies leonina*; *Elephantias*, *Elephantiasis*, and *Barbadoes Leg*. It is known to old writers as "Icelandic scurvy," to the islanders as *Lík-thrá-sótt*, or *corpse-pang*, which Henderson translates, a rotten, rancid corpse;¹ *Holdsvæiki*, or *flesh-weakness*, and *Spítalska* ("Spital sickness), the latter being the biblical term. When the extremities drop off, the term generally applied was *Límafallski*.

In the ninth century, leprosy required some 19,000 hospitals in Europe; and it has perhaps lingered longest in the Færoes and in Iceland. Here, curious to observe, its very headquarters were about Skagi and Reykjanes, the best and mildest climates. A few cases still remain, but the establishments built in Catholic days have not been kept up by the Reformation, perhaps showing the want to be less urgent. The horrid malady is evidently dying a natural death, like others which have yielded their places to new comers, or which are gradually disappearing, without leaving issue. The best authorities explain the change by the use of bromide of potassium and the increase of vegetable diet. And to the question of Aretæus, "*Sed quænam medela excogitari poterit, quæ Elephantem, tam ingens malum, expugnari digna est?*" Iceland answers, fearless of Cobbett, the potato. The latter has taken the place of the old-fashioned simples, the tops and berries of juniper (*J. communis*), of *Dryas octopelata*, of *Vaccinium myrtillus* (bilberries), of *Sanguisorbs*, and of similar sub-acid tonics.

It is impossible to enter into a subject which has filled many a volume, but it may briefly be stated that no cosmical cause of leprosy has ever been discovered; and that what seems to account for its origin in one place, completely fails in another. India, especially Malabar, attributes it to biliary derangements, caused by fish and milk diet. The Brazil, like the Jews, the

¹ From *Lík*, Germ. *Leiche*, Eng. *Lych*, as in *lych-gate*, and *Thrá*, a throe or pang. *Hold* is flesh.

Moslems, and other pig-haters, refers it to pork; Syria and Palestine, ignoring the "impure," declare it to result fromatism and inheritance. Iceland remarks that it was worst when men wore woollen garments; and similarly Sir George Staur assigns the modern exemption of Europe to the general use of linen.

Peirce declares that syphilis (introduced, according to Von Troil, about A.D. 1753), chlorosis, mania à potu, caries of teeth and intermittent fevers are unknown, or almost unknown. He is certainly incorrect with respect to the latter complaint. Typhus and various febrile affections are very common in the finest and warmest months, when many of the peasantry show signs of "malaria." Pleurisy is popularly supposed to be infectious. Rachitis, called in Norway the "English sickness," because it is supposed to have passed over in late years from Britain to France, Holland, and Germany; scrofula and consumption are rare. Chiragra is attributed by old writers to "handling wet fishing tackle in cold weather."¹ The trismus infantium seu neonatorum, called "ginklofi" when opisther and "klums" if emprosthenous, has raged like a plague, especially at Heimaey, one of the Vestmannaeyjar. The children, contrary to the practice of all wild peoples, were weaned at the first week, and were fed upon the flesh of the foul molli fulmar-petrel: the same was once the case at St Kilda, with similar results. At Heimaey, 64 per cent. of babes have died between the fifth and the twelfth days after birth: since a man was stationed there, the tetanus has been arrested; and in 20 births, only a small proportion has been lost.

The other complaints are catarrhs, influenzas (where they have little "influence"), and chronic rheumatisms, the latter especially a plague; hysteria, gout, and arthrites, constipation, diarrhœas, very prevalent during spring. The endemic eel-coccus and cysticercus, affecting one-seventh of the population, are subjects of remarkable interest, which have been treated

¹ This, like other forms of gout, certainly depends much upon the peculiar beverage. In England we find it amongst the beer-drinking poorer classes. At Padua, the author was informed by the celebrated Dr Pinalli, does not present a single case even to lecture upon.

considerable length. No less than seven species of hydatids have been detected in dogs. An able analysis of writings upon these internal cysts, causing "liver-complaints" and "staggers," will be found in Schmidt's *Jahrbücher der in-und Ausländischen Gesammten Medecin* (No. V., Band 134 of 1867, and No. X., Band 152 of 1871). The principal northern authorities quoted are Hjaltalín, Jón Finsen, Krabbe, Thorarensen, and Skaptason.

SECTION VI.

EDUCATION AND PROFESSIONS.

§ 1. EDUCATION.

All Icelanders can read and write more or less, they learn the three R's to say nothing of the fourth R(evolution); but this alphabetic state of society may consist, as in the Paraguayan Republic under Dr Francia and the two Presidents Lopez, with a profound state of barbarism. In Iceland, however, the press is not trammled; and the newspaper, as will appear, holds its own. During the last generation it was otherwise. Education, a domestic growth, ignored modern science and especially mechanics; reading, indeed, was confined to Saga-history and theology, both equally detrimental to mental training and to intellectual progress. It is still of home manufacture: the high school exists but not the school, and in so thinly populated a country we can hardly expect the latter. At Reykjavik private tuition may be found; and throughout the country some clergymen prepare scholars. But the pursuit of knowledge is evidently carried on under difficulties; "their learning is like bread in a besieged town, every man gets a mouthful, but no man a bellyful."

Christian III., the Reformer, ordered a school to be built near each cathedral church—a Moslem action which did him honour. Skálholt had forty, and Hólar thirty-four students when the high school, which, as in the United States, is called the "Latin school,"

was removed to Reykjavik in 1801; in 1805 it was transferred to Bessastaðir, and in 1846 it again returned to the capital. Pétursson (p. 365, et seq.) gives the fullest account of the institution till 1840. In 1834 Dillon found the whole number reduced to forty, of whom some received stipends of \$33, and of \$60 per annum. In 1872 the total of scholars was sixty the maximum being eighty-eight and the minimum fifty of these forty are distributed amongst the dormitories, and with different families in the town; twenty-three are day scholars residing with their families or friends. The lads matriculate on confirmation, if from the country; and the usual ages are from fifteen to seventeen. They are separated into four classes (Icelandic, Danish, German, and French), but No. 3 is subdivided into A and B; thus making the total five. No. 4 also demands similar treatment, but it is not wanted and also money to fee extra professors. No. 1, which is the junior class, studies Icelandic, Danish, Thýsku¹ (German and Latin, as far as Cæsar and Phædrus; Bible history and natural history, general history, geography, and zoology. No. 2 covers these items and introduces the student to mathematics, and English. No. 3 adds geology, mineralogy, and botany. No. 4 French and general information. The course lasts four years, ending with the maximum age of twenty-three; after the scholar is "demissus" and can become a "candidatus" of law, or devote himself to law or physic. The shorter holidays are from December 23 to January 3, and from Holy Wednesday to the Wednesday after Easter Sunday. The long vacation that of our venerable universities, originally designed for enabling poor scholars to beg and to take part in the all-important labours of ingathering the harvest; between July 1 and Oct

¹ Thýðverjaland, or Thjóðverjaland, is Teuton-land, Germany, the old names being Thýðverskr, Thýzkr, and Thýeskr. Icelandic here has been borrowed from the Gothic Thjuth, the German Dintisc (Dintisch or Teutonic), the Latin Theotiscus, and the modern Teutsch or Deutsch, through trade in the eleventh or twelfth century (Cleasby). But Rafn (*Antiquités de l'Orient*, i. 107) quotes the Roman de Rou of Robert Wace:

"Cosme sont en thioiz et en normant parler,"

to show that the two terms were applied to a single tongue. From them come the Italian Tedesco and the English "Dutch," which the vulgar in the United States still persistently apply to Germans. Schöningh (p. 310, *Copernicus*, 1777) and Laing (*Heimskringla*, iii. 349) confused Thýzkr with "Turkisk"

being the busy time at home: moreover, the lads have a long and a hard way to travel. The high school year is thus of nine months.

The students are known by their "signums," a lyre in circle borne upon the cap-band, but some appear to prefer the cross as a badge. In the college they rise at 6.30 A.M., and if not dressed and ready by 7 A.M. they are reprimanded. At that hour they drink coffee with sugar and milk, and fifty minutes afterwards they go to chapel, which lasts till 8 A.M. The morning lectures now begin, and at 10.45 A.M. they are dismissed to a breakfast of coffee, bread and butter, cold fish, and sometimes meat.¹ The pupils do not take their meals in the school building, but at the different houses where they board. No stimulants whatever are allowed, nor must the pupils smoke, snuff, nor chew in or about the buildings, but of course they can indulge outside it. The second lecture then continues from 11.15 to 2 P.M., after which two hours are given to recreation and dinner of hot fish or meat. Till 7 P.M. the studies for the next day are prepared; and supper, cold like the breakfast, leads to more private reading between 8 P.M. and 10 P.M., at which time all boarders must be in college. The day ends in the chapel, hymns accompanying the prayers; and all are in bed at 10.45, or 11 P.M. on Sundays and festivals. Thus there are five and a half hours of lectures; five of preparation for the next day, and seven hours thirty minutes for sleep. Punishments are confined to degradation in the class and, in extreme cases, to expulsion; of course there is no flogging, and the prison and unsalutary semi-starvation of the French college are equally unknown. Fasts are not kept, even after the fashion of Oxford, which, in the author's day, noted "abstinence" by the addition of fish.

Public examinations take place every year about mid-June; they are held in the first-floor front hall of the building where the Althing meets. They begin with writing, a professor walk-

¹ For a full account of the ancient dietary as prescribed by law in 1789, see Baring-Gould, p. 29. The items are meat and peas; sausages cold and warm; meat, broth, and soup; haddock and flounder; stock fish and butter ("the staff of life"); skyr (not curd) and cold milk; meal-grout, buckwheat-porridge, and barley-water grout with milk and butter.

ing about to prevent "cribbing," and they end in *viva voce*. These determine the students' claims to the stipendia, of which there are three grades. There are twenty-six Heil-Ölmusa¹ (whole scholarships), each of \$100 per annum; twenty-four Hálf-Ölmusa of \$50, and four Quarter-Ölmusa, the latter often not distributed. Moreover, those who proceed for study to the University of Copenhagen are entitled to \$15 per mensem.

The Latin school (Latínuskóli i Reykjavíki) publishes yearly transactions, in a short yellow pamphlet, Icelandic and Danish (Skýrsla um hinn Lærðaskóla Reykj. Einar Þorðarson). In that of 1871 we find the following names:

The Rector is the only official who lives in the college, and he receives a salary of \$1816 per annum. The actual tenant (1872)² is Hr Jens Sigurðsson, brother to Jón, the O'Connell of Iceland, and he has made himself eminent by his historical studies.

The Yfirkennari, or head-master, lectures the fourth, or highest class, in Greek, Latin, and French, with a salary of \$1192. The present occupant is Hr Jón Þorkelsson.

Of the following professors (Skólakennari, Dan. Adjunct), three receive a total of \$3756 per annum = \$1192, including house rent; the theological lecturer (Prestaskólakennari, Dan. Docent) about the same sum; while the two assistants receive something more than half (\$612). Their names and duties are:

1. Haldór Kr. Friðriksson, who lectures all the classes in Icelandic, Danish, German, English, and geography.

2. Gísli Magnússon, in Latin, Greek, and Hebrew; the Hebrew formerly so much affected, is now become almost obsolete; there are only eighteen pupils at the priests' seminary, and a single Oriental student on the island, Rev. Thorwaldr Björnsson, whom we shall presently meet. It is curious how those who hold "the Bible and nothing but the Bible," neglect the Oriental text for translations, which are so far from being correct that the best often utterly pervert the meaning; and, stranger still, the vast stores of exegetical and hermeneutical learning should

¹ Ölmusa or Almusa is the Greek Ἐλεημοσύνη, the German Almosen, and the English Alms (Cleasby).

² He died November 2, 1872.

still lie locked up in the forbidden Talmud,¹ and in the pages of Jewish commentators.

3. Jónas Guðmundsson, in Latin, Danish, and theology.

4. Haldór Guðmundsson, in arithmetic, physics, mathematics, and botany.

5. Hannes Árnason, in geology and minerology.

The three extra professors are :

1. Procurator P. Melsteð, in Danish history and geography ; he is a *Tímakennari* (Dan. *Timelærer*) paid by the hour, 40 skillings.

2. *Saungkennari* (Dan. *Musiklærer*), the organist, P. Guðjónsson, who receives annually \$250, without house-rent.

3. *Kennari i leikfimi* (Dan. *Gymnastiklærer*), C. P. Stunberg, said to be a retired officer in the Danish Army ; his salary is the same as No. 3.

And, finally, there is the inspector with a pay of \$220 per annum.

The only unequivocal success of an Iceland education appears to be the hand-writing ; it is caligraphic as in the Brazil and Paraguay ; probably for the same reason, namely, that time is not money. As will appear in the Journal, a smattering of modern languages has been allowed gradually to usurp the place of Latin, which few even of the priests now speak fluently—the traveller frequently regrets the change. The Rob Roy canoeist finds the classical tongue a meagre vehicle for intercourse ; he would not do so if he knew the neo-Latin languages, and would give an hour per day for a few weeks to the colloquies of Erasmus, pronounced Italianistically, and to conversation with a foreign priest. Professor Blackie proposes Greek as the language of the future ; we shall next expect to see Sanskrit or Chinese² advo-

¹ The author is aware that a student who reads Greek and Latin, Italian, Spanish, Portugese, French, German, and English, will find almost all the Talmud, certainly all the valuable parts, in translation at the library of the British Museum. But, unhappily, British Museums do not exist everywhere. Till the constitutional days of Italy the five Jewish Synagogues at Rome were not allowed to own copies of this vast repertory of Hebrew lore.

² If English, as appears likely, is to become the cosmopolitan language of commerce, it will have to borrow from Chinese as much monosyllable and as little inflection as possible. The Japanese have already commenced the systematic process of "pidgeoning," which for centuries has been used on the West African Coast, in Jamaica, and, in fact, throughout tropical England, Hindostan alone excepted.

cated: the difficulties of the ancient dialect, with its duals and middles, are enormous, and no such thing as modern Greek yet exists.¹

The Icelandic pronunciation of the Latin vowels is Italian rather than French, *e.g.*, *Dominum* (like "room," not *Dominom*) and *náúttá*, a sailor, not *nota*: *j*, after vernacular fashion, is equivalent to *y* (*ejus* = *eyus*); and *g* in *gener*, *regio*, and *gymnast* are hard (*get*, not *George*). The stranger must carefully conform to these peculiarities or he will not be understood.

Icelanders have two grievances connected with the Latin school, one not unreasonable, the other urgent. They complain that youths learn bad habits at the capital, and parents prefer the days of the "schola Bessestadensis." Moreover, they declare that the suppression of the northern school has caused loss of time and money—families being obliged to send their children from the eastern quarter almost round the island viâ the north to Reykjavik. The Danish Government could hardly do better than to restore the northern centre of learning, and, perhaps, transferring the southern to Thingvellir would improve the present state of things.

Art simply does not exist in Iceland, and, to judge from the little museum of Reykjavik, it was always rude as that of Central Africa: the only attempt appears to be on the part of the goldsmith. There is a single painter at Reykjavik, and his career has been cramped by inability to study in lands where the sun shines. The sculptor and the architect have no business here. Even music and dancing, especially the latter, which reminds us of that "accursed thing," the dancing-master lately denounced in Argyleshire, have hardly passed, except at Reykjavik, from the savage to the barbarous stage. We read of the Fidla or violin, and of a Lang Spil like that of the Scoto-Scandinavian islands, an oblong box about two feet three inches wide, and ending in a "fiddle-head;" the three steel wires were

¹ The dialects vary so much that we can hardly speak of modern Greek. The only approach to it is the bastard, half-classical jargon, almost confined to the professors and the λογίωται of the capital and chief towns. Worse still, all the Romaic grammars and dictionaries are devoted to teaching a tongue which no illiterate person speaks, ever spoke, or ever, it is to be hoped, will speak. Except by actual travel it is hardly possible to learn the charmingly native dialects of the peasantry.

either scraped with a bow, or were scratched with the forefinger, the instrument being placed upon a table. But local colour has departed and we hear only that piano which civilised men just prefer to the guillotine, an occasional flute, and some form of "musical bellows," harmonium, or accordion. The traveller's ears are never regaled with the Norwegian Ranz des Vaches, nor the plaintive airs which have struck earlier visitors. And the people appear to be deficient both in time and tune; their lullabies are horrible; "Hieland Laddie" is painfully distorted, and the snatches of song are in the true "rum-ti-tiddy" style, grateful, perhaps, to Dan Dinmont, but assuredly to none but he.

A little volume of 180 pages published by the Icelandic Literary Society, at Copenhagen (Islenzk Sálmasaungs og Messubók), and costing \$1, suggested that there might be some remnants of music handed down from the past. But it proved to be merely a collection of old German hymns well-known throughout the Lutheran world; and the only specimens worth reproducing were these.

No. I. (82b in original).

Túnga mín &c. (Sá krossfesti Kristur lifir).



Sá kross-fest-i Krist-ur lif-ir, krist-inn eng-an skal thví mann
dauðans fall-a ótt-i yf-ir, eng-in gröf hann skelf-a kann;



theim, sem lú-inn threyr, upp-bú-in thæg er sæng, að hvíl-ist hann.

No. II. (in Book No. 83).

Um dauðann gef thú, drottinn, mér.



Um dauð-ann gef thú, drott-inn, mér dag-leg' að hugs-a
og að mín sél' á end-a fer, eg víst thví gleym-i

meg : i; upp-lýs mitt hjart-a, herr-a minn! að hræð-
eig : i; kynn' eg dóm-inn thinn, á efsta' er upp kveðst deg -

No. III. (in Book No. 90).

Thèr thakkir gjörum.

Ljós ljóm-ar dag - ur, lífs kæt-ist hag - ur, sjá, ljós-
vek - ur, sól nótt burt hrek - ur. Enn föð - ur a
a ei - líf - um gjald - a thökk skal thre-fald - a.

§ 2. PROFESSIONS.

The army and navy being unknown to Iceland, the li professions are confined to three—Church, Law, and Physic.

The Church is a favourite profession, and we shall soon see the reason why. “Magnam, quæ in templa eorumque mini ante viguerat,” says Bishop Pétursson, “munificentiam post formationem evanuisse et ex eo inde tempore conditionem s dotum Islandicorum miserrimam fuisse constat.” The ec astical division was formerly into two bishoprics—Skál established in A.D. 1057; and Hólar, in A.D. 1107.¹ The d

¹ The two cathedrals of Catholic days were burnt: their successors humble buildings; that of Skálholt was a wooden barn; the building at was, like the Viðey church, of stone, a rare thing outside Reykjavik.

tries were originally under the jurisdiction of the Archbishop of Bremen-cum-Hamburg. In A.D. 1103-4 they became subject to Azerus (Aussur or Össur), first Archbishop of Lund; and, lastly, in A.D. 1152, they were made suffragans of the Bishop of Thronhjelm. In A.D. 1797 the sees were united; a single bishop appointed by the Crown was stationed, as now, at Reykjavik; and the cathedral lacked, as it still lacks, a chapter. Since Norway was divided from Denmark, the chief dignitary was placed under the ecclesiastical jurisdiction of the Seeland Bishopric, but this authority is sometimes questioned. It was proposed by a pragmatist innovator of late years that the present bishop should be consecrated by the Archbishop of Canterbury, but the attempt failed before the indignation of the clergy and laity; it aimed, in fact, at yielding the question of apostolic succession. The machinator took refuge in England.

The clergy are also appointed by the bishop, subject to the confirmation of the Crown. They were divided into *Héraðs-prófastr* (Dan. *Stiftprovest*), or archdeacons (now obsolete); *Prófastur* (*præpositus*), provosts or deacons, ranking between rector and bishop; *Prestar*, rectors or curés; and *Aðstoðarprestur*, alias *Kapellán*, corresponding with our curates. There is no expression equivalent to "vicar," and it must be coined for purposes of translating him of Wakefield.

In 1772 the island had 189 parishes (*Presta-köll*), namely, 127 under the see of *Skálholt*, and 62 under *Hólar*; in 1834 there were 194 livings or parochial churches; and in 1872 the number had fallen to 171. A yearly report, published at Copenhagen (*Anglýsing um Endurskoðað brauðamat á Íslandi*), gives a sufficiency of details. According to the last issue (1872), the island contained 171 ecclesiastics, or 1 : 456, a strong contrast with the 7000 priests at Rome; there were 301 churches and chapels (*Annexja = Annexe*) to 305 in 1818; consequently 130 were not filled, and service was confined to about once in three weeks.¹ The revenues, however, are appropriated to the incumbents of other livings.

¹ Bishop Pétursson (299-305) supplies a "Specification" of all the priesthoods and their revenues in the island.

There are twenty Profástæmid (deaconries), viz. :

Parishes.		Parishes	
Norðurmúla, numbering	9	Brought forward,	86
Suðurmúla, „	11	Dala, numbering	5
Austurkaptarfella, „	5	Barðastrandar, „	8
Vesturskaptarfella, „	7	Vesturísafjarðar „	6
5. Rangárvalla, including the Vestman- naeyjar, „	12	Norðurísafjarðar, „	7
Árnes, „	14	15. Stranda, „	4
Gullbringu ¹ and Kjósar, „	8	Húnavatns, „	13
Borgarfjarðar, including Reykholt, „	6	Skagafjarðar, „	13
Mýra, „	7	Eyjafjarðar, „	13
10. Snæfells, „	7	Suðurthingeyjar, including Myvatn's Thing, „	11
		20. Norðurthingeyjar, „	5
Carry forward,	86	Total,	171

The smallest living is that of Sandfell í Öræfum = \$111.89; the highest that of Hof í Vopnafirði = \$1545.33: in Dillon's day, "Breiðabólstaðr" was the most lucrative benefice. The bishop's salary is now \$3416; and the rector of Reykjavik draws \$1524.77. Seven livings pass \$1000 per annum; three, \$900; six, \$800; six, \$700; eleven, \$600; twenty-four, \$500; twenty-seven, \$400; thirty-three, \$300 (below which sum pay is considered poor); thirty-nine, \$200; and twelve, \$100. Mr Vice-Consul Crowe (Report, 1865-66) makes the priest's honorarium average about 300 rixdollars annually, or £34. When Henson travelled (1818), the richest living, if he be correct, which is open to doubt, was of \$200; many were of \$36, and some of \$5 per annum. Other old travellers speak of \$33, and even \$30. They justly term these incomes "miserably limited," but they neglect to add rent-free manse and glebe-land, often some of the best in the county, besides various minor sources of gain. It became the fashion to pity the Icelandic clergy, who were compelled to be farmers, fishermen, and craftsmen after the fashion of St Dunstan. The latter in 1834 are represented to have been especially numerous; but as every man in Iceland is more or less a blacksmith and a carpenter, we may again suspect invol-

¹ Gullbringu is the Sýsla which contains Reykjavik; but the cathedral town is, of course, under a separate jurisdiction.

untary misrepresentation. This life of labour is still the case with the Maronites, whose Church is far from being a *refugium peccatorum*. The "Prestr," who had an industrious wife, and no taste for fine wines and tobacco, was better placed than his kinsman the Bóndi,¹ who had to pay, instead of receiving, tithes. And considering the relative value of money, we may doubt if he was ever so severely pressed by the wolf Poverty as many an English ecclesiastic, a scandal which is only now being removed.² In 1810 the bishop received, with the contributions of the school-fund, \$1800 per annum; this £200 was fully equal in those days to £2000 in modern England. The author, when in Iceland, never saw a parson shoe a horse or take money for his hospitality.

The bishoprics of Skálholt and Hólar at first followed the ecclesiastical regulations drawn up by St Ólafr of Norway. In A.D. 1097 they adopted the tithe laws, which Sæmund the Wise had compiled, which were sanctioned by Bishop Gizur Isleifsson, and which were proclaimed by the President of the Icelandic Republic (Lögsögumaður), Markus Skeggjason. An order of the Althing (A.D. 1100-1275) divided this Tíund into four quarters, paid respectively to the bishop (Biskups-tíund), the priest (Prests-tíund), the church (repairs, etc., Kirkju-tíund), and the poor (Fátækra-tíund); and this division still obtains in the case of tithes from properties exceeding a certain value. After April 16, 1556, the bishop's portion was appropriated by the sovereign under the name of "Crown tithes." This form of tax is obsolete in Europe, but it can hardly be altered for the better in a sparsely populated country like Iceland, attached to

¹ Bóndi (of old, Búandi and Bóandi), *plur.* Buéndr or Bóéndr (Germ. Bauer, Eng. Hus-band) included all the owners of landed property and householders (Bá), from the petty freeholder to the franklin, especially the class represented by our yeomen and the "statesmen" of Cumberland and Westmoreland. It is still opposed in Iceland to the "klerkar" (clergy), to the knights, to the barons (Hersir- or Lendir-menn), and to the royal officers (hirð). In more despotic Norway and Denmark, "bóndi" became a word of contempt for the lower classes; and in modern Danish, Bønder means plebs, a boor. Bú, from að búa, to build, to inhabit, is the household and stores, opposed to Bær, the house (Cleasby).

² In 1873, no less than 4385 "livings" in the Church of England were under £200 per annum: of these, 1211 were under £100; 1596 ranged between £100 and £150; and 1578 from £150 to £200. Measures have lately been taken to abate this scandal, which pays less for the "cure of souls" than for the care of stables.

the *mos majorum*, where the state of society differs little from that which originated the impost.¹

In 1810, the Tjund of twelve head of fish, or an equivalent of 27 skillings, then = 1 shilling, was required from every person possessing more than five hundreds,² and it increased in uniform ratio with property. The subject of tithes has become a mass of intricacies, and only the outlines of the system can find room. The Tjund (Teind of the Shetlands) is now an impost of one per cent. on the value of all assessable property, viz., on land, boats, horses, cows, and sheep. The tithes of properties not exceeding five "hundreds," or about \$150, are applied undivided to supporting paupers; above that sum, they are quartered, as before mentioned.

Tithes may also be divided into two classes—the first, taken upon all the hundreds of immovable property, land, and houses; the second, levied after the fifth hundred, upon movable goods, money, horses, cattle, and fishing boats with their gear. Formerly every fisherman contributed one share of one day's fishing to the hospitals; now he pays $\frac{1}{2}$ ell, or 12 skillings, of every 120 heads of fish, and 1 ell, or 24 skillings, for every barrel of shark liver oil (Law 12, Feb. 1872). Church and Crown estates are exempt. Hospital lands, like the property of the governor, the bishop, the amtmenn, and the priests, pay only the "few-taking," quarter-tithe or poor-tax.

The clergyman also adds to his temporalities by fees for baptisms, marriages, and burials. Each farmer is bound to feed an ecclesiastical mutton from mid-October to mid-May. This is a relic of Catholicism, when the "lamb of SS. Mary and Joseph" was intended as a feast, given by the priest to his parishioners

¹ The traveller cannot but think that our scientific political economists are apt, in outlying countries, to neglect the first rule of taxation, namely, to avoid imposing novelties, and to levy imposts with which the people are accustomed. Thus India willingly contributes salt and capitation taxes, and especially Naza-ránah, or legacy duties, whilst she hates the name of income-tax. No one will deny that the two former are objectionable for a host of reasons, but the question is, whether they are less injurious than those which lead to the many evils engendered by chronic discontent.

² The system of hundreds will be discussed when treating of taxation. Suffice it here to say that in modern Iceland, as in England of former times, the value of land tenure was estimated not by extent, but by produce. Indeed, superficial land-measures, such as the "mark" of the Færoes (= 32,500 square English feet), are unknown to the island.

after they had communicated. Now the latter graze the mutton, but do not eat it. The Prestr can also command a *corvée* of the poorer peasantry for at least one day to get in his hay-crop. And what distinguish his position in Iceland are the high proportion and the comparative value of Church property.

In 1695 the distribution of the 4059 farms upon the island was as follows:

Crown lands,	718	} 2212
Church lands,	1494	
Freehold lands,	1847	

Uno Von Troil (1772), quoting the Liber Villarium, or Land-book of 1695, thus distributes the Church property:

Bishopric of Skálholt,	304 farms.
" Hólar,	345 "
Church glebes,	640 "
Clergy glebes,	140 "
Glebes of superannuated clergymen,	45 "
For the poor,	16 "
For hospitals,	4 "
Total,	1494 "

Here, out of a total of 4059, the sovereign, the clergy, and the poor whom they represented, monopolised a total of 2212. And in the present day the whole number of farms being 4357,¹ the clergy still hold the best properties. The total of 87,860 hundreds may now be divided as follows:

Crown hundreds,	8,886 $\frac{1}{2}$
Priest hundreds,	15,309 $\frac{2}{3}$
Hospitals and poor hundreds,	1,099 $\frac{1}{2}$
Farmers' hundreds,	62,363

The proportion has declined from half to little more than a third, but it is still abnormal.

The power of landed property, combined with superior education and the facility of evicting tenantry, makes the Iceland parson a "squarson" of purest type, as the witty compounder of

¹ It should be remembered that "Heimili" (households, families) are quite different from "Jarðir" (farms); and the two must not be confounded. The number of the former is 9306, of the latter 4357.

the word understood it. He inherits, moreover, not only the respect, but even the political power of the old pagan *Goði*. He commands elections as a rule,¹ and can return himself, as well as his friends, to the *Althing*. Indeed, nothing in Iceland struck the author more than the despotism of the Lutheran Church. It is like the state of Bavaria, where the priests manage the polling by threatening the well-known "Fire of Heaven."

Nothing need be said of legal studies in Iceland, as the course is relegated to Copenhagen.

The island being divided into medical districts, gives a certain impulse to aspirants. The head physician, or surgeon-general (*Land-physicus*) of Iceland, who, after being passed by the Faculty of Copenhagen, lectures at Reykjavik, is Dr *Jón Jónsson Hjáltafn*: his publications are well known throughout Europe, and he will often be mentioned in the following pages. His salary is \$1766 a year, and he supervises the eight, formerly seven, district *Doctores Medicinæ*. These at present are :

1. Dr *Thorgrímur Ássmundsson* Johnsen, stationed in the eastern part of the Southern Quarter.
2. Dr *Thorsteinn Jónsson*, in the *Vestmannaeyjar*, where his treatment has been most successful.
3. Dr *Hjörtur Jónsson*, in the southern part of the Western Quadrant.
4. Dr *Thórvaldur Jónsson*, in the northern part of do.
5. Dr *Jósep Skaptason*, in the *Húnavatn* and *Skagafjörð Sýslas*.
6. Dr *Thórdur Tómasson*, in the *Eyjafjörð* and *Thingey Sýslas*.
7. Dr *Fritz Zeuthen*, in the eastern districts.
8. The *Candid. Medic.* *Ólafur Stephánsson Thórarensen*, in the north-east, *Hofi* and *Eyjafjörð Sýslas*.

These gentlemen must prescribe gratis, but they are allowed to sell drugs. Their salaries are about \$900 per annum, and under

¹ In 1872 contested elections were almost unknown; at least only one was quoted, and the candidate had learned the practice in England. The position of *Al-thingis-maðr* was also an object of scanty ambition except to those who required the small salary, or who had a political theory to work out. The assertion in the text is denied by Icelanders; but the author repeatedly heard it made by Danes and other foreigners settled in the island—at any rate, we may expect to see it realised by the new constitution. Knowledge is power in Iceland as elsewhere, and the numbers of the priesthood secure their influence, whilst the physicians and lawyers are too few to be of much account.

the most favourable circumstances their incomes do not exceed \$1000 to \$1200. The only apothecary on the island is M. Randríp, a Dane, who is also Consul de France. He distributes medicines without taking fees, and draws an annual salary of \$350.

The number of midwives¹ (Icel. Yfirsetu-konur, oversitting wives) is about a score. That devotion to homœopathy recorded by travellers in the early nineteenth century, appears to be going the way of all systems, after a short but not a wholly useless career.

SECTION VII.

ZOOLOGICAL NOTES (ANIMALS WILD AND TAME)— NOTES ON FLORA—AGRICULTURE AND CATTLE- BREEDING — FISHERIES AND FISHING — IN- DUSTRY AND EMIGRATION.

§ 1. ZOOLOGICAL NOTES AND SPORT.

Iceland, which is an exaggeration of Scotland, whilst Greenland exaggerates Iceland, is supposed to number seven families and thirty-four species of mammals, but of these twenty-four are "water creatures." Two quadrupeds have been considered indigenous, though evidently imported; the first is the mouse of many fables, the second is the fox. An old Iceland tradition asserts that Reynard was spitefully imported by a king of Norway, as magpies were sent to Ireland by the hated Saxon. Some are still floated over on the ice, but they seldom appear upon the east coast. A premium upon vulpecide dates from olden days, and increased demand for the robe has made the animals comparatively rare. Formerly they did immense damage amongst the newly-dropped lambs, and the farmers ignored the Scotch "dodge" of applying a streak of tar to the shoulder or

¹ The English Midwife means "with-wife," from the Icel. "Með," the German Mit.

to any part of the youngling. The people divide foxes into tame and wild: the latter grapple the sheep by their wool and never loose them till they fall exhausted.

Horrebow the Dane (Nat. Hist. of Ice.) mentions dark-red foxes, but Hooker neither saw nor heard of them. Kerguelen refers to red as well as to black,¹ blue, and white foxes. Uno Von Troil declares that some of the animals are called "Gras tóur" (or grass-eating tod);² usually two varieties are recognised, *C. lagopus* (Mel-rakki) and *C. fuliginosus*; but the *Isatis* or white Arctic and the sooty-brown are probably the same animal at several seasons. Some assert the former to be white all the year round, but no hunter ever pretends to have found a white cub. The blue fox, which haunts certain places, very seldom comes to market, because the chief chasseur is dead. The white coat is cheap, the fine brown is rare and dear. Iceland, of course, abounds in folk-lore and Æsopian tales of Skolli (the skulker), as well as of mice, gulls, and ravens; the string of foxes hanging over the cliffs, and the contrivance of the vixen to escape from the hounds, show ingenuity in the inventor.³

The history of the imported reindeer (*C. tarandus*) is well known. In 1770 Hr Sörensen, a merchant, embarked thirteen head from Norway; of these ten died on the passage, and three fawned before 1772. They were never used for sledges: as the mule is the familiar of the Latin family, and the camel of the nearer East, so the reindeer can be developed only by the Lapps, Finns, and Tungusians. Moreover, the reindeer is fitted only for a snowy country; the skin and hair do not readily throw off water, and the animals suffer severely from wet—hence Iceland proved anything but the expected paradise. The average life of the Havier (stag) is said to be sixteen years. The young horns were eaten by the old Norwegians, and, when hard, they were cut into cramp-ring like those of the elk (*Alce equicervus*)—a *curatio*

¹ So Styria and Istria boast of a "Kohl-fuchs," so termed from his coal-black waistcoat.

² May not the idea have arisen from a confusion of "Tó," a grass-tuft, with "Tóa," or "Tófa," a tod? The older name, Mel-rakki, is derived from burrowing in the sand.

³ Uno Von Troil (p. 140) also mentions wild cats (Urðar-kettir, cats-o'-stone-heap) and rats.

trarium. Some of these attires are grand as those of the ian Wapiti. There are now only two known herds upon land, and details concerning them will be given in the al.

e Fjánhundur or shepherd-dog (*C. Islandicus*), according to kenzie, is of the Greenland breed; the "prick-eared cur" only resembles the Eskimo, sometimes with a dash of our e. Formerly they were far more numerous than men; and authors mention several breeds—"lubbar" or shag-dogs; dýr-ndar, deer or fox hounds, and dverg-hundar, dwarf hounds or dogs. Foreign animals are now rare; the common sort is little "pariah," not unlike the Pomeranian; stunted, short-cked, and sharp-snouted, with ruffed neck and bushy tail, or ther brush, curling and recurling. The colour is mostly brown-lack, some are light-brown, deep-black, white, and piebald. Those brought to Reykjavik appear shy, savage, and snappish as oxes. Formerly they were trained to keep caravan-ponies on the path; now they guard the flocks, loiter about the farms, and keep cattle off the "tún."¹ Good specimens easily fetch \$6; a horse may be exchanged for the most valuable, those which, they say, can search a sheep under nine ells of snow. They are accused of propagating amongst their masters, hydatid disease and intestinal worms (*Tænia echinococcus*); and this consideration induced the Althing, in 1871, *magno cum risu* of the public, who asked why the cats were not assessed, to impose an annual dog-tax of \$2 per head upon all exceeding a certain number on each farm—it will cause the premature death of many a promising pup. Half of the amount is the perquisite of the Hreppstjórar, the other moiety goes to the Treasury. The danger would be less if the dogs were not so often allowed to lick the platters clean, and to perform ether and similar domestic duties.

Cats are common, especially in the capital, showing that defence is necessary against rats and mice. Herds of swine are alluded to in the island Sagas; and Iceland, like the Færoes, is full of such names as Svína-fell, Svína-dalr, and Svína-vatn. Not a single head is now seen except at Reykjavik, where a few

¹ The Irish "town-land," *i.e.*, yard and meadow; Scotch "toun;" Cornish "town;" Dutch "tuyn," a garden; and Germ. "tzaun."

are annually imported for immediate slaughtering. The peasants cannot afford to rear such expensive animals, which, moreover, damage the "tún." A few goats are said to linger about the northern parts of the island; formerly they were common, but about 1770 they began to be proscribed for injuring the turf-roofs—where they can find no vines.

There are six families and some ninety species of birds, fifty-four of the latter being water-fowl. A valuable list of the air-fauna may be found in Appendix A. to Baring-Gould's volume, "Notes on the Ornithology of Iceland," by Alfred Newton, M.A. Almost every traveller has dipped into the subject, but Mr Newton has twice visited the island to study his specialty. His conclusion is thus stated: "The character of the avi-fauna of this country, as might have been expected from its geographical position, is essentially European, just as that of Greenland has American tendencies." Of course many are emigrants from the south, and, treating of this subject, we should not forget the poetical, and apparently practical, theory of Runeberg the Skáld of modern Sweden. He makes the object light, not merely warmth: "The bird of passage is of noble birth; he bears a motto, and his motto is '*Lux Mea Dux.*'"

The most interesting of the game denizens is the ptarmigan (*Tetrao lagopus*). The people recognise only one species, but in these matters they are of no authority, and foreigners suspect the existence of two as in Norway. The small mountain-ptarmigan (*Lagopus vulgaris*) of the Continent is white in winter and grey speckled black at other times; its note is compared with the frog's croak, the sheep's cough, or the harsh cry of the missel-thrush. The Danish Skov or Dal-rype (wood or dale ptarmigan) is some seventeen inches long, white-plumed in winter, and during the rest of the year clad in warm yellow-brown, like the red grouse; the "cluck" can be heard a mile off. Metcalfe recognised in Iceland a modified cluck, while Faber and Yarrell believe the islander to be a new species. The cock is locally called Rjúpkarri, and the hen Rjúpa (Reb-huhn), evidently from the cry. It carries the young on the back, and is said to be stupid as the Touraco; this was not the author's experience. Mackenzie appears to be in error when he makes the Scotch ptarmigan

unt the hills, and the Icelander prefer the lowlands. The d enters largely into folk-lore: the fox of fable blinds it by owing the snow in its eyes; and when the ger-falcon pierces heart, he screams for sorrow to find that he has slain a sister. Flocks of geese, also mentioned by the Sagas, are now found, e swans, only in the wild state; yet there is little apparent son for the change. The raven will be treated of in another ce; there are no crows except stragglers blown to sea by the thern gales. Poultry is still bred in small numbers about farms, and, if the proportions were greater, they would be ful in clearing the ground of the injurious lumbrici. But the veller observes that gallinaceous birds, originally natives of : tropics and of the lower temperates, though easily acclimated the higher latitudes, will not thrive beyond the habitat of the ilised cereals. At any rate in Iceland their productiveness limited.

It is generally known that there are no snakes in Iceland as Ireland. Islands disconnected from continents by broad cts of sea like Annobom and St Helena, notably lack omous reptiles; the latter, however, have passed over the eteen miles between Fernando Po and the Camarones main- d. Papilios and sphinxes, newts and lizards, frogs and toads, o shun the cold damp air. Mackenzie found a coccinella near : Geysir; and Madame Ida Pfeiffer secured two wild bees ich she carried off in spirits of wine. The pests are gnats, lges, and fleas; the pediculus is well known, but the cimex, in older England, has not yet become naturalised.

Mr J. Gwyn Jeffreys kindly obliged the author with the fol- ving note concerning a small collection forwarded to him.

“WARE PRIORY, HERTS,
5th October 1872.

‘MY DEAR SIR,— The Iceland shells are as follows:

Marine—

1. *Littorina obtusata*, Linné; var. = *L. palliata*, Say. = *L. limata*, Lovén.

Land—

2. *Helix arbustorum*, L.
3. *Succinea putris*, L.; var. *Groenlandica*, Beck.

Fresh-water—

4. *Pisidium nitidum*, Jenyns; var. *Steenbuchii*, Müller.

5. *Limnæa peregra*, Müller; var. *Vahlîi*, Beck.

"Most of the land shells of Iceland are usually thin, from a deficiency of lime or calcareous material. This is not the case with the succinea, or with the fresh-water shells, and much less with the marine.

"Nearly all your shells were broken.—Yours truly,

(Signed) "J. GWYN JEFFREYS."

Baring-Gould (p. 114) found "fossil fresh-water shells on the sand formations between the trap-beds."

The sportsman must not expect to see in Iceland that "abundance of game," promised by old and even by writers of the last decade; he may content himself with No. 5 shot—No. 1, or swan shot, being now useless. Fur is hardly to be had; no foreigner has yet brought down a reindeer; and the seals belong to the owner of the shore. The people kill Reynard with "fox-shot"—but vulpecide will scarcely commend itself to the Englishman. Feather is nearly as rare. Eider ducks are defended by law, and the author, after visiting the most likely places, can count the ptarmigan flushed; they are generally "potted" sitting in the snow when they approach the farms. Only four whoopers showed themselves *dulcibus in stagnis*; these singing swans, whose music is mentioned by every winter-traveller, are becoming strangers as in the Orkneys and Shetlands. The great auk is gone—for ever gone; all his haunts have lately been ransacked in vain. Eight or nine years ago the lakes and ponds swarmed with duck; now their places know them no more. Sandpipers, common and purple; malingering golden plover,¹ oyster-catchers, curlew, and whimbrel, and the characteristic whimbrel (*Numenius phæopus*, Icel. Spói), all of them detestable eating, with an occasional snippet or snipe, especially the Hrossa-gaukr² ("horse-snipe," *Gallinago media*), so called from

¹ This bird (*Charadrius pluvialis*, Icel. Hey-ló and Hey-lóa, the fem. Hey-lás commonly used, the hay-sandpiper), "quite the commonest in Iceland" (Baring-Gould, p. 411)—the snow-bunting being perhaps the commonest of the small birds—is black breasted in the breeding season, and afterwards becomes "golden."

² Gaukr (mod. gickr) is a congener of the A. Sax. Gaec; the Irish Cuach (hence Mo-chuachin, "my little cuckoo!"); the Scotch Gowk; the German Gauch; the Danish Gick, and the Slav. Keuk or Kukavitsa: the Serbian legend makes it a sister calling upon a lost brother. The Index Vocum, etc. (Land-námabók, p. 486), explains it Cuculus.

its neighing cry, and, perhaps, from the popular idea of its throwing somersaults in the air, can hardly be called inducements—except to a Cockney gun. The one sufficient reason for this disappearance of birds is the systematic robbery of their nests; an ever-increasing population with decreasing means must eat up everything eatable.

§ 2. NOTES ON THE FLORA.

The vegetation of Iceland, like Greenland, is that of Scandinavia, which Dr Hooker has shown to be one of the oldest on the globe. The popularly adopted computation gives 407 species of Phanerogams, of which one-eighth are grain-bearing; one-eighth leguminous; one-ninth cyperaceæ; one-seventeenth composite, and about one-eighteenth crucifers.

That the present poverty of bread-stuffs is comparatively modern, may be proved by such names as Akrey, Akureyri, Akranes, Akra-hverar, and a host of others, all derived from Akr, a corn-field; the Aker of Lappland (*άγρός*, ager, acker, acre). We have also the distinct testimony of ancient literature. The *Landnámabók* (p. 15) mentions the Arðr¹ (*aratum*) and ploughing with cattle. The *Njála* says, "Bleikir akrrar en slegin tún"—the corn-fields are bleached (to harvest) and the tún is mown. Though the island is now placed north of the barley-limit, crops of barley and rye have apparently been grown.

Forbes and other writers attempt to explain away the significance of "akr," by suggesting that the indigenous wild oat might have been cultivated in former days, and hence the traces of tilled and furrowed fields which have been allowed to relapse into the savage state. This grain of many names (*Avena arenaria*, *Elymus arenarius*, *Granum spicatum*, *secalinum maritimum*, *spicâ longiooe*, and *arundo foliorum lateribus convolutis acumine*

¹ This is a lineal descendant from the ancient and venerable root which named the Aryan race, *ἄροι*, *i.e.*, ploughers not pastors, and which produced *Ar-atron*, *Ar-atrum*; Bohemian, *Or-adlo*; Lithuanian, *Ar-klas*; Cornish, *Ar-adar*, and Welsh, *Ar-ad*, and which survives in our word to "ear." The *Arðr* of the Sagas was probably heavier and bulkier than the *Plógr*, a late word of foreign stamp, which "our American cousins" will degrade to "plow."

pungente) is popularly called Melr;¹ and old authors divide the "sea-lyme grass" of Iceland into two species—(1.) *Avena arenaria*, and (2.) *Avena foliorum lateribus convolutis*. The opinion is untenable for two reasons. Firstly, the cereal is a local growth, flourishing chiefly in the Skaptarfells Sýsla and in the Mýrdals and Skeiðarár Sandur; it exists in the north-east of the island; but it does not yield food. Secondly, transplantation has often been tried during the last few years, for instance, to the Borgarfjörð, and other highly favourable spots, with one effect—like Kangaroo grass in Australia, the grain refused to ripen. Finally, we may observe, Ólafsson and Pállsson on their journey through Iceland, nearly a century ago, mention wheat growing in the southern districts.

The cause of the change, sometimes attributed to oscillations of temperature, is simply disforestation, which has promoted the growth of bog and heath now covering half the island, which allows storm-winds to sweep unopposed over the surface, and which, since the Saga times, has necessarily rendered the cold less endurable to cereals. A number of local names, beginning with Reynir, the sorb apple (*Sorbus edulis*),² proves that groves of the wild fruit-tree, whose pomaceous berries, rich in malic acid, were munched by the outlaw, once flourished where there is now not a trace of them. The Landnámabók (chap. i., p. 7) expressly declares that Iceland was wooded from the sea to the mountains, or inner plateau (*var thá skógr milom fjalls og fjöru*); and tells us how, as in Madeira Island, the woods were destroyed by fire. Vain attempts have been made to remedy an evil which is now all but irreparable; without nurseries and walls, the young plants are always wind-wrung. As in the Orkneys and Shetlands, the only trees now growing wild are rowans; birches (*Betula alba, nana, and fruticosa*), and ground-

¹ This word, Melr (*plur.* Melar), wild oats or bent, also Mel-gras (whence Mel-rakki, the fox), must be distinguished from what the Dictionary, erroneously I think, makes its secondary sense, a sand-hill, dune, dene or link, overgrown with such grass, and a sandbank generally, even when bare. The question is, was the oat called from its sand-bed or *vice versá*? For a description of this feature, see Chapter IX.

Etymologically, Reynir is applied to a cousin, the rowan tree, or mountain ash (*Pyrus aucuparia*), especially sacred to Thor. Hence the Vikings were called ash-men, because they sat under the sacred ash, which defended them from the evil eye.

juniper (*J. communis*, Icel. *Einir*); the dwarf red, grey, and green-grey willows (*Salix Lapponum*, etc., Icel. *Grá-Víðir*), of which sixteen species have been collected, hardly ever exceed the size of sage, which, indeed, the Selja (*S. caprea*) greatly resembles. The twiggy birch-thickets seldom surpass six feet in height, the northern part of Iceland being the extreme limit of the growth; and a tree whose topmost leaves rise fifteen feet excites general admiration. The verdant patches labelled *Skógr* (forest), and scattered in the map, especially about the *Lagarfjót*, the *Thjórsá*, and the *Hvítá*, denote this scrub. Yet the bogs supply tree stumps a foot and more in diameter.

The wild flora of Iceland is small and delicate, with bright bloom, the heaths being especially admired; and the traveller is at first surprised to find no difference in the vegetation of the uplands and the lowlands.

Baring-Gould (Appendix C.) gives of Dicotyledons, Ranunculaceæ (14 species), Papaveraceæ (2), Cruciferæ (22), Violaceæ (4), Droseraceæ (2), Polygalaceæ (1), Caryophyllaceæ (25), Linaceæ (1), Hypericaceæ (1), Geraniaceæ (3), Leguminosæ (8), Rosaceæ (20),¹ Pomeæ (2), Onagraceæ (9), Haloragaceæ (2), Portulacaceæ (1), Crassulaceæ (17), Saxifragaceæ (19), Umbelliferæ (7), Araliaceæ (1), Cornaceæ (1), Rubiaceæ (10), Valerianaceæ (1), Dipsacaceæ (2), Compositæ (26), Campanulaceæ (2), Vacciniaceæ (4), Ericaceæ (7), Pyrolaceæ (3), Gentianaceæ (15), Polemoniaceæ (1), Boraginaceæ (6), Scrophulariaceæ (18), Labiatae (8), Lentibulariaceæ (2), Primulaceæ (3), Plumbaginiae (2), Plantaginaceæ (6), Chenopodiaceæ (3), Sceleranthaceæ (1), Polygonaceæ (13), Empetraceæ (1), Callithrichaceæ (2), Ceratophyllaceæ (1), Urticeæ (2), Betulaceæ (3), Salicaceæ (17), and Coniferæ, only one *J. Communis*.

The Monocotyledons are Orchidaceæ (13), Trilliaceæ (1), Liliaceæ (1), Melanthaceæ (3), Juncaceæ (11), Juncaginaceæ (2), Typhaceæ (1), Naidaceæ (7), Cyperaceæ (47), and Gramineæ (50). The Acotyledons are Polypodiaceæ (13), Ophioglossaceæ (2), Lycopodiaceæ (8), and Equisetaceæ (6).

¹ Hooker (ii. 325) found a true rose, the *Rosa hibernica*, growing in the Selja-land, but only there. Thus it is not wholly wanting, as in the southern hemisphere.

The traveller refers for details to his own pages, to Hooker's Journal (1813), to Zoega's "Flora Islandica," to Preyer and Zirkel's "Reise nach Island," to Dr W. L. Lindsay's "Flora of Iceland" (Edinburgh New Philosophical Journal, July 1861), and to Dr Hjaltalín's "Grasafraði" (Handbook of Icelandic Botany, 8vo, 1830).

Building-wood is wholly imported. Fuel, here used only for the kitchen, is supplied by the Argul of the Tartar, "chips" (*fimo bubulo pro lignis utuntur*); by peat, which varies in depth from two to twenty-seven yards; and by driftwood, which adds considerable value to the shores receiving it. There are two chief deposits, the northern supplied by Septentrional Europe, and the western by the New World; the latter has of late years so much diminished that the islanders expect soon to see it cease.

Concerning the origin of that miocene growth, Surtar-brand,¹ or Iceland lignite, there are two conflicting opinions. Older writers believe it to be a local production, a growth like that which created the coal of the carboniferous period. The more modern support the theory that it is accumulated driftwood, semi-fossilised like Zanzibar copal, by heat and pressure. The question is still open to new light; but as fossil leaves of plants were brought from Disco by Sir Edward Belcher's Expedition; as we have convincing proofs that those latitudes were once inhabited by forests presenting fifty to sixty species of arborescent trees, elm, oak, pine, maple, and plane; and, what is more remarkable by apparently evergreen trees and quasi-tropical flora, showing that these regions must have had perennial light; we must incline to the old opinion. Early in this century, the Danish Government promised rewards to "persons who shall find out

¹ Further notices will occur in the Journal (Chap. V.) about this Surtar-brand (not "Surtur-brand"). Etymologically, it is from Surtr (a congener of "swarthy" "the Black," a fire-giant, who, coming from the south, will destroy the Odin-world, and Brandr, a firebrand. After the change of faith, this northern Ahriman or Set (Typhon) was ready to hand, and at once became the Semitico-Scandinavian "Devil." Upon the same principle, the latter is known in Scotland as "Auld Sootie," since the classical gamins gave horns and tail to Pluto, and the face of the great god Pan was blackened by the monks. The Surtshellir tunnel in western Iceland, famed for the atrocious "Cave-men" (outlaws), is also derived from the Surtr of Scandinavian mythology. The author did not visit it, but the descriptions and illustrations suggested the Umm Nirán in the lava formations of the Safá, near Damascus, noticed in "Unexplored Syria."

easier methods of breaking and using Surtar-brand from the rocks" (Hooker), but we do not hear that any one has deserved such generosity.

The greatest deposits of Swart-brand are on the north-western Fjörðs, where it has been mined to a small extent, and whence specimens have been sent to England. It is mostly found bedded in layers three or four inches thick, alternating with trap. The surface is usually black and shiny, flaking, and otherwise behaving like lignite; burning with a weak flame and a sour smell like wet wood. The smiths formerly preferred it to sea-coal, "because it did not waste the iron;" when powdered, it preserved clothes from the moth, and, being an antiseptic, it was used internally against colics. The author was shown a specimen of true pitch-coal from the Hvítá valley; it is mentioned by Mackenzie (p. 368), who describes it as highly combustible, but not existing in large quantities. This source of wealth, as well as Iceland spar, Iceland moss, cryolite, and especially the sulphur fields, will be noticed in future pages; further details about the interesting Surtar-brand will also be given in the Journal.

§ 3. AGRICULTURE.

At present the grass lands are the wealth of the island, as they pasture the flocks and herds, which form the chief means of subsistence, and the most important articles of industry and commerce. The meadows are grassed over by nature, not ploughed nor harrowed, such implements being rarely used. Nor are they seeded, although Dillon (p. 125) speaks of the weedy grass crop being *sown* in May, growing about June in weedy pastures where, shortly before, no vegetation had been, and being fit for mowing in later August, when the snow is off the hills,¹ and when garden-stuff is ripe. The grass is soft and thick, much like our red-top, and about six inches high; only in rare places the ponies wade up to their knees in through the rich meads. The hay is carefully "sheared," and is exceedingly

¹ In Switzerland, also, the minimum of snow coincides with the last of July and early August.

sweet. White clover (*Trifolium repens*, Icel. Smári) flourishes; and on the streams it is found growing spontaneously with caraway (*Carum carui*); the red species wants, they say, the fructifying insect.

Mackenzie, and other old travellers, assure us that the island requires nothing but active and intelligent men, able to combat the prejudices and to stimulate the exertions of the peasantry. The latter complain of the neglect of the Danish Government, and call upon Hercules, but will not help themselves. It is conceded that draining, ploughing, and manuring would improve the soil. But the question still remains, Is the short summer sufficient to ripen grain? Late experiments with seed-corn have proved failures, one quarter of a barrel yielded only half a barrel: this suggests that in the older day seed was imported. Moreover, the taxes and the tenure of land militate against improvement; whilst the excessive labour and expense required for the first steps, such as levelling the soil, place the preliminary operations beyond the reach of most Bændr. Governor Thodal (1772) sowed barley, which grew very briskly: a short time before it was to be reaped, a violent storm scattered the grains from the ear (U. v. Troil, p. 47). Governor Finsen tried oats in his compound but they stubbornly refused to ripen. Many a summer will pass before an island poet will again sing the "Georgics of Iceland, and before the island can bear the motto, "Cruce et Aratro."

At the close of the eighteenth century the Crown of Denmark established, in the northern district of the Húnavatn, model farms, chiefly directed by foreigners. The grains experimented upon were mostly oats, barley, and rye, autumnal and vernal (*Secale cereale, hybernum et æstivum*). When protected by walls the rye almost ripened, but the ears were seldom fecund. Still remain for trial various German ryes (*Johanniskorn* or *Studentenkorn*); spelt (*Triticum spelta*); the buckwheat of Tartary (*Polygonum Tataricum*); the *Triticum monococum*, and sundry kind of barley, the square autumnal (*Hordeum vulgare hybernum*), the square vernal, so useful to middle Europe (*H. v. æstivum*), and, above all, the Lapland barley, which Linnæus says may be planted at the end of May, and reaped on July 28. Abyssini and the Western Hemisphere will supply the island with edibl

meadow-grasses and millet-grasses, Poas, and *Festucæ* (*Ovina* and others),¹ and especially with the Quinoa (*Chenopodium quinoa*) of the Peruvian Andes, which ripens where no other corn grows. And let us hope that the indigenous cereals have not yet had a fair chance.

In the last century Hr Haldorsen introduced the potato, which has now extended over the island. Dillon calls it a pigmy, and compares it with a tennis ball; but it has improved since his day. Turnips would flourish, especially upon the warmer coasts, where the sub-soil is palagonitic sand, and where manure of seaweed abounds. Radishes, as now cultivated, are hard, coarse, and woody: spinach is a success, and much might be done to fatten the indigenous sorrel. The Stranda Sýsla to the north-west has attempted with various fortunes, sundry kinds of caules; the broccoli, which grows quickly; the turnip-cabbage (*Brassica oleracea gangloides*), eaten in summer; the curled cole-wort (*B. o. sabellica*), kept for winter use; the red cabbage, strong to resist cold; the large growing white variety (*B. o. capitata alba*), and the cauliflower, which hardly exceeds the size of a man's fist—it is found, however, that the two latter refuse to seed. The other pottage-plants are lettuces, common in gardens; beetroot, red and yellow; carrots; onions, garlic, and shalots (*Al. asculonicum*); chervil (*Scandix cerefolium*); black mustard, which, considering the climate, attains unusual dimensions; water cress; radishes; horse radish (*Raphanus niger*); and parsley, the latter taking six to seven weeks before it rises above ground. In 1865, there were about 7000 garden plots.

The tenure of land is either by lease from the Crown and the Church, or held in fee simple; the latter is the old Óðal,² preserved in modern Norway. Since ancient times, there has been a fourfold division of estates: (1.) King's land, bearing a succession duty of 1 per cent., and assigned to a family as long as it pays its rent; (2.) Church land; (3.) Freehold, held by contribut-

¹ The indigenous Poas number twelve, and the *Festucæ* three.

² Óðal is a congener of the German Edel and Adel, noble, as the "chiefs" of Scandinavian and Teutonic communities were the land-holders. Hence the mid. Lat. Allodium; and (Cleasby) "feudal" is fee-odal, odal held as a fee (Germ. *vieh*; Dutch, *vee*; pecunia, capitale) from the king: Dr Sullivan prefers *Feodum* from Fuidhir, fugitives. Popularly, Udal, Allodium, prædium hereditarium, is opposed to feudal.

ing land-tax; and (4.) Land charitably bequeathed to the poor. Crown property may be granted either by the *Sýslumaðr*, whose income is often eked out by a temporary tenure gratis; or by the *Umboðsmenn*,¹ of whom there is generally one for every two *Sýslas*. They are also paid by grants of Government farms; they receive a percentage upon those they lease, and they report to the *Land-fógeti* (treasurer). Church property is under the *Amtmaðr*, controlled by the bishop, but, as a rule, it is sub-leased by the parish priest in whose living it is. A large proportion of farms is thus held. The poor lands are let by the rector and the *Hreppstjórar*, superintended by the *Sýslumenn*. The tenant, besides agreeing to support one or more paupers, pays ground-rent for all buildings upon the farm, and he can underlet it in parts, the sub-tenant paying, perhaps, a barrel of rye per annum.

Mackenzie compares the tenure of land leased to the farmer with the Scotch "steel-bow;" the rent is paid in two ways:

1. *Landskuld*, lease-money or rent owed by the tenant to the Crown, the Church, or the landowner. It is taken in specie or in kind, at the rate of \$2 to \$3 per \$100. The latter is supposed to be fixed by ancient valuation; practically, it is very unsettled; and in Iceland, as elsewhere, the landlord will strive to obtain the terms most favourable to himself.

2. *Lausa-fè*, the rent on movable property, especially kine and sheep, opposed to land, or even land with its cattle. It is generally levied in butter, one of the articles of currency. Each tenant is bound to take over from his predecessor the permanent stock on certain conditions, and to leave the same number when he quits.

Property cannot be entailed. The estates of those dying intestate are distributed amongst the children; formerly, whole shares fell to sons, half shares to daughters—all now share equally. This process justifies De Tocqueville, who, expressing his surprise that ancient and modern publicists had paid so little attention to succession laws, regarded them as the most important of political institutions.

¹ The Icelandic *Umboð* are our Umboth-lands, formerly belonging to the bishop, and afterwards transferred to the Crown. Etymologically, the word means a charge or stewardship.

Dufferin seems to think (pp. 141, 142) that almost perpetual leases are the rule in Iceland: the contrary is the case; and the small proportion of freehold is a crying evil. Many farms are let to tenants at will from year to year, with six months' notice: evictions are allowed by law for neglect or misconduct, easily proved by the rich against the poor; and the ejected farmer's only remedy is to disprove the charges by a survey of the Hreppstjórar, and of two respectable neighbours. The instability of landed tenure, the undefined state of the tenant-right, and the certainty of rents being raised by the parson or the Umboth-superintendent, if profits increase, for instance if minerals be discovered, are potent obstacles to regular and energetic improvement. The remedy evidently lies in the sale of Crown property, and in the secularisation of Church lands, with due compensation to the actual holders.

The farms are all named, mostly from natural features. There are, however, not a few which have borrowed from the outer world, for instance a Hamburg in the Fljótsdalr: even "Jerusalem" is not unknown—the result of Crusading days. The best are on the north side of the island; yet the three most generally cited as models are Viðey off the west coast, and Hólmar and Möðrudalr, to the east. The south-western (not the southern) shore supports a fishing rather than a pastoral or agricultural population. The non-maritime people live in scattered homesteads, which nowhere form the humblest village: this is the unit of the constitutional machinery of Iceland, as the township was amongst the Anglo-Saxons. The only settlements are the trading-places on the sea-shore.

Drainage and fencing are not wholly neglected. In 1856 there were 40,202 fathoms of ditching, and 44,671 fathoms of railing, these improvements being all modern work. Each farm has, besides the "tún," a bit of lowland upon which grass is grown, and a large extent of barren hill and moorland, where the sheep graze during the fine season; this is always assumed to belong to the property. Hence the Shetland phrase, "fra the heist off the hill to the lawest off the ebbe" (milli fjalls og fjöru). The "Bær" is divided from its neighbours by Vörður ("warders"), or landmarks, natural and artificial; the latter are stone heaps,

the former some marked limit, as a hill, a rock, or a stream. The boundaries are a perpetual cause of dispute, and some of the most complicated lawsuits have thus arisen. Not a few of the wilder peasantry live in a chronic state of land-feud; they "make it up" over their cups, and they return to the natural belligerent condition when sober.

The tenants of an Iceland farm usually number six classes.

1. Bonders (Bændr),¹ the Shetland Boonds, franklins, farmers, or yeomen; the "upper ten."

2. Húsmenn, or tómtúsmenn, who have houses upon the farm, but are not allowed pasturage or haymaking. They have been confounded by travellers with—

3. Kaupamenn, labourers working for hire.

4. Hjáleigumenn (crofters), those who occupy the hjáleiga, or a small farm, an appendage to the larger establishments.

5. Servants (Icel. Vinnumenn).

6. Paupers (Icel. Ómagar or Niðursetningr).

Much harm is done by the multitude of lazy loons that gathers round the farmer, a practice dating from ancient days, all striving to live upon the best of the land, with the least amount of work.

Thus we see that "agriculture," being absolutely confined to haymaking, is a mere misnomer in Iceland, nearly three-quarters of whose population is pastoral, though not nomad. The wealth of the country consists of sheep, horses, and black cattle; goats are spoken of in the north, but the author did not see a single head.

Since the first third of the nineteenth century, Iceland has witnessed a gradual and regular increase of population, and a proportionate decrease of live stock.² The following are the numbers of animals given by Mackenzie for 1804:

¹ See Section VI.

² The author's statement made in the *Standard* found objectors. Hr E. Magnússon impudently contradicted what he termed a *contradictio in adjecto*, apparently ignorant of the simple truth that neither logic nor Latin can affect facts and figures. It is amply confirmed by the Consular Report of 1870-71: "The stocks of domestic animals have shown a steady tendency to decrease, especially as regards the sheep flocks, which at times have been cruelly decimated by scab epidemics; the occasional failure of the grass crops exercises also a destructive influence on their herds and flocks generally, as they have no means at hand of substituting other fodder for the excellent wild pastures with which in ordinary years Nature supplies them so bounteously. These occasional epidemics and

Cows,	15,595	Milch ewes,	102,805
Heifers,	1,556	Rams and wethers,	49,527
Bulls and oxen,	1,132	Lambs,	66,986
Calves,	2,042	Total of sheep,	218,818
Total of cattle,	20,325	Total of horses,	26,524

In 1834-35, according to Mr John Barrow, jun., repeated in 1854 by Mr Pliny Miles, the total of sheep, the chief staple of the land, was 500,000. M. Eugène Robert gives 617,401 for 1845. But in 1855 appeared the disease (*scabies*) which, according to the "Oxonian" (p. 389), in two years killed off 200,000 head: in many parts of the island it still rages.

In 1863 Paijkull assigned 350,000 sheep and 22,000 head of black cattle to 68,000 souls. In 1871 the official numbers are :

Milch ewes and lambs,	173,562
Barren ewes,	18,615
Wethers and rams above one year old,	55,710
Yearlings,	118,243
Total,	366,130

or a falling off of 134,000, where the population has gained since 1834-35 upwards of 13,700.

The next source of profit in Iceland is breeding black cattle. According to the same traveller, the total in 1834 was 36,000 to 40,000 head. The official tables for 1871 give :

Cows and calves,	15,634
Bulls and bullocks above one year old,	828
Yearlings,	2,649
Total,	19,111

or a falling off of nearly half, when the population has increased about one-fifth.

The following table shows the comparative numbers :

1855	there were of sheep,	489,132	of horned cattle,	(?)	of horses,	(?)
1860	"	309,177	"	(?)	"	(?)
1866	"	398,295	"	20,357	"	85,241
1867	"	368,591	"	19,003	"	83,768
1868	"	351,167	"	17,968	"	81,796
1869	"	356,701	"	18,342	"	80,835
1870	"	352,443	"	18,189	"	80,078
1871	"	366,130	"	19,111	"	79,688

grass failures are bewailed by the Icelander as national calamities; but it is a question whether they may not prove to be the reverse, by opening his eyes to the necessity of devoting his energies and small capital to the better and more regular prosecution of the fisheries, which are boundless in extent, and less dependent on vicissitudes and seasons."

Thus, not including 1871, the number of horses since 1855 has decreased upwards of 25 per cent., horned cattle 23 per cent., and sheep a little more than 31 per cent.

Black cattle, according to Mackenzie, resemble the largest Highland breed; the author thought them far more like our short-horns in general, and especially Alderneys. Dillon makes them generally hornless,¹ and the breed has remained unchanged. The cows yield an abundance of milk, sometimes ten to twelve quarts a day. There has been no disease amongst the "slaughter-creatures," as Icelanders call black cattle, but the gold of California and Australia has affected even Ultima Thule. In 1830-40 the price of a cow, \$4, had increased to \$28 in 1870; in 1872 it had risen to \$50-\$80, and the animal often cost \$100 to \$120 in rearing. Twenty years ago the pound of beef fetched eight to ten skillings (farthings); now it averages one mark (fourpence) to one mark three skillings. Few householders own more than eight head of cattle, and probably half that number would be a high average. The community lives chiefly upon milk and fish; hence the sale of a cow is to the children the death of a friend, causing tears and lamentations.

The large but scattered flocks of sheep are the chief support of the islandry. The peasants pay rent and debts in June and July by the wool which is then washed and ready for sale; and in September and October by wether-mutton smoked and cured; by grease and tallow, and by sheep-skins and lamb-skins with the coat on. They reserve the butter and cheese mostly for bargains and for household use. In 1770 the wether sold for \$1; in 1810 it had risen to \$2, and even \$5, and in 1872 to \$9. Besides supplying food, the animals yield material for local industries—coarse cloth, clothes, frocks and jackets, mittens, stockings and socks, made by the women, and used or exported. The fleece, which may average two to four pounds,² is not sheared,

¹ "Perhaps," says Peirce (p. 29), "this is why the official statistics, with a sort of grim humour, number the 'horned cattle' at 23,713, while other authorities say there are 40,000 'cattle.'" He also quotes Dillon (p. 291) about four-horned and six-horned sheep—"quadricorns" are exceptional in Iceland as in most countries.

² More exactly the average yield of a one-year old is 1½ lb.; of a two-year, 2¼ lbs.; and of a three-year old, 3 lbs.

but "roo'd," or plucked when loose, with little pain to the wearer. Though coarse it is long, while under the hard outer coat (Icel. Tog or Thel) there is a fine soft tog, not a little resembling the "Pashm" of Persia, Afghanistan, and Northern India. The price varies considerably, the usual limits being tenpence to a shilling. Of course it depends greatly upon the export, which in some years has reached 1,750,000 lbs.; in 1868 about 625,000 lbs. were shipped to England. The "scraggy," long-legged animal suggests, on the whole, the old Scotch breed. Intermixture of merino and other blood has been partially tried, but it is a disputed point whether improved form and quality of wool have or have not brought increased liability to disease. The surest way to improve the island-sheep is to feed it better, but the peasant is too lazy to shear the hills for hay not absolutely necessary.

The exportation of live stock unaccompanied by proportional emigration may end in a calamity. Fatal famines deform the island annals, and in any year another may result from an inclement summer, producing scarcity of grass. It would be justifiable to part with necessaries if the profits were laid out upon improvements; but this is far from being the case. The peasant sells his cattle and sheep to buy for himself vile tobacco; "bogus" cognac; brennivín or kornschnaps, and perhaps even "port" and "sherry;" and for his wife chignon and crinolines, silks and calicoes, instead of the homely but lasting frieze cloth. His grandfather infused Iceland moss; he must drink coffee, while raisins or cassonade are replaced by candied or loaf sugar. Figs boiled with rice and milk were then offered to guests, and angelica root was a *boccon ghiotto*. And so with other matters. The Althing has attempted to curb the crying evil of ever increasing drunkenness, the worst disease of the island because the most general, by a tax which will be described under the head of cesses; and sensible men would see it increased.

During the last forty years the number of horses has gradually fallen to half; in 1871 the total was only 3164 over the 26,324 which Mackenzie gave for A.D. 1804. In 1834, according to John Barrow, jun., a careful observer, though apparently his figures do not come from official sources, the census varied from 50,000 to 60,000; and the same is given for 1835 by Mr Pliny

Miles (1854), who may have copied his predecessor. In 1845 the census numbered 34,584. In 1862 the late Professor Pajkull counted 37,000, or 0·5 per head of population; during that year 828 (?) were exported to Scotland via Belgium. The last census, for June 6, 1871, shows:

Horses and mares, four years old and upwards,	23,059
„ „ under three years,	6,629
Total,	29,688

The following figures denote only the exportation from the capital; though many animals are bought in other parts of the island, they are usually driven to Reykjavik, and the people complain that the west, where horse-flesh is scarcest, sends out the most. Those embarked at the chief port, sometimes in troops of 400, were either two-year olds or upwards of ten-year old, and many appeared to the author fit only for the knacker's yard.

In 1861 (Consular Reports, 1865) were imported into Great Britain, 444 head.	
„ 1862 total export (Pajkull) 828 head; Parl. Rep. give	856 „
„ 1863 Consular Report	345 „
„ 1864 „ and official figures on island	470 ¹ „
„ 1869 official figures	507 „
„ 1870 „	906 „
„ 1871 „	1018 „
„ 1872 a conjecture perhaps understated	2000 ² „

For three years Dr Hjaltalín advised the Althing to impose a heavy tax on exported horses, and to expend the income upon road-making: the plan was too sensible to suit the majority. The theorists, who are not a few in Iceland and Denmark, object to unfree trade, and look only at present profits—when will nations learn that to imitate one another often produces not a copy but a caricature? Upon the subject of horse-flesh, further details will be found in the Journal.

To resume: Mr Consul Crowe (Report, 1870-71) gives the following value-tables of farm-produce:

¹ Valued at a total of £2468, or about £5, 5s. a head. The prices will be considered in the course of the Journal.

² The steamer "Queen" in 1872 embarked 1030 head and the "Yarrow" 1414; these figures are given from the *Scotsman*. In 1873 the price had risen to £10 to £14, and the hire was a Danish dollar a day; thus the peasant was deprived of transport for himself and his goods.

	1864.	1865.	1866.	1867.	1868.	1869.
fat, brls.	1,902	716	2,206	2,985	2,003	2,758
lbs.	453,279	461,193	452,261	556,254	530,798	451,655
sheep-pieces,	8,438	2,870	11,552	14,592	8,861	14,746
skins, do.	8,411	81,649	30,729	26,886	12,393	15,862
wool, lbs.	1,215,162	1,393,161	1,547,169	1,223,580	1,423,392	1,218,067
" "	15,893	21,858	25,886	8,303	7,779	7,942
" "	109,538	116,241	132,394	96,881	122,456	97,618

which the annual exported value is—

	S. AMT.	W. AMT.	N. & E. AMT.	WHOLE ISLAND.	
	Value Rix dols.	Value Rix dols.	Value Rix dols.	Quantities.	Value Rix dols.
fat,	3,150	2,185	35,910	2,095 brls.	41,245
"	15,334	5,813	61,394	484,240 lbs.	82,541
sheep-skins,	826	112	8,602	10,176 pcs.	9,540
skins,	525	331	893	20,988 "	1,749
wool,	121,218	66,847	205,354	1,386,755 lbs.	392,419
"	2,253	835	1,201	14,610 "	4,289
"	6,922	4,126	12,394	112,521 "	23,442
Total,	150,228	79,249	325,748	...	\$555,225

§ 4. FISHERIES.

er mentions forty-five species of fish, seven of them being tants of fresh waters; but the list is evidently incomplete. taceæ alone the Iceland seas produce thirteen varieties: we visit the headquarters of whale-catching on the eastern

The Hákal, or edible shark, is also an animal of import-ar surpassing the seal. The halibut (Spraka) is rare in the but it is found in abundance in the north-west; the sole ating, and the herring (Síld) is unaccountably absent, ex-n the north and east; the latter sometimes enters the bays gives a little work about Seyðisfjörð and Akureyri, but it not pay.¹ Mackerel, lobsters and oysters, shrimps and

is is not the case with Norway, situated in the latitude of Iceland and and, as the old rhyme shows:

prawns, are unknown; there are crabs which contain little meat, and a variety of limpets (*Patella*), and mussels (*Mytilus edulis*), eaten and used for bait. The principal fish upon the coast are the true cod (*Gades morrhua*); the ling (*Lota morrhua*), with the long dorsal fin; the hake (*G. merluccius*); the haddock (*G. aeglefinnus*); the coal-fish (Icel. Isa; *G. carbonarius*); the skate (*Raia*; Icel. Skata), and the stinging-ray (*R. trygon*; Icel. Græð-skata or Tindabikkja). The rivers teem with salmon (*S. salar*); the lakes and ponds with trout (Silungr) and char (*Salmo Alpinus*).¹

Ichthyological study is everywhere in its infancy, and awaits its full development, when the greatly increased density of earth's population will enhance the difficulty of supplying it with a sufficiency of food. The late Professor Agassiz ably vindicated the superiority of fish-diet for brain-workers, as well as for the poor classes of society,—it abounds in phosphorus and “ohne Phosphor keine Gedanken.” The noble fisheries of Iceland are still in the most primitive style of development; the appliances are of the poorest, and the people display neither energy nor intelligence, which must be aroused by an impulse from without. The returns, as we shall see, are considerable, but they might be indefinitely augmented if modern improvements and commercial enterprise were enlisted to make the best of this generous source of wealth.

For the ocean is emphatically the poor man's larder. With equal capital and labour it is made far more productive than the earth, and the ratio is ever increasing in its favour. Whilst land-animals give birth to one or two young at a time, fish produce their millions, and the bulk far exceeds anything that walks the earth. Whilst, at most, one-eighth of Iceland is capable of yielding food in any appreciable quantities, the circumpolar

“ Sidst i Torri og først i Gio,
Skal Sild og Hval være i Sio.”

“ At the last of Torri (first moon after Christmas) and first of Gio (the second moon),
The sillock (herring, *Clupea harengus*) and whale in the sea will show.”

Yet in Coxe's time (late eighteenth century) the herring had disappeared from the shore, being found only in deep water; and Fortia (Travels in Sweden) tells us, that firing of guns was not allowed for fear of frightening the fickle fish.

¹ Concerning the fresh-water fishes, details will be found in the Journal.

seas swarm with profuse life, tier upon tier extending thousands of feet deep. "In hot latitudes the deep-sea temperature diminishes till the mercury stands at 40° (F.); in the parallel of 70° the ocean, many degrees warmer than the land-surface, is of the same temperature at all depths."¹ And as the voyager advances toward the poles, the diffusion of animal life increases prodigiously. The waters around Iceland, as about Greenland, produce endless forage for their tenants, such as the squids (*Sepiadae*), and the *Clio Borealis*, the favourite pasture of the whale; whilst fine and nutritious grasses occupying the shore and the shallows yield pasture for the seals.² The rivers rolling glacier-water, and the white streams tinged by *detritus*, are, it is true, barren; but they bear down the alluvium of cultivated lands, and the drainage serves to augment the supply of food.

The abundant sea-harvests, especially of cod, soon attracted the attention of foreign nations; and as early as A.D. 1412, thirty European ships or crafts frequented the coasts of Iceland. Until 1872, the maritime territorial limits of four Danish, or nearly twenty English, miles, laid down by the law of 1787, were preserved with all its wholesome provisions, pains, and penalties. The new retains the old ordinance in case of necessity, but annuls certain objectionable parts; for instance, it allows the necessary landing and warehousing of fishermen's stores on the payment of a moderate and conditional charge to the local poor-box.

It has been shown that the fisheries of Iceland are worked by 3500 boats, manned by upwards of 5000 souls, only one-tenth of those employed upon the farms. But this would give a false idea of the important industry which, depending upon the peculiar character of the people, has determined more than anything else the modes and the inspiration of national life. Especially between February and May, the "fishing peasants" flock to the shore; the seaboard farms and factories become populous, and the whole

¹ R. J. Walker, quoted by Peirce. Dr Carpenter and Professor Wyville Thomson, in the "Lightning," made the remarkable discovery that sea-water at different depths, is of different temperatures—the older theory being that the sea was of a uniform temperature of 39° (F.).

² In intertropical and temperate latitudes *Phocæ* and *Manatis* devour the fetid marine vegetation which collects on river bars, chokes the mouths, and causes "Yellow Jack" to prevail from Florida to Rio de Janeiro.

energy and interests of the island are turned to its characteristic occupation. Off the south-western county there is perennial fishery—salmon in spring, and cod nearly all the year.¹

Cod fishing is carried on along the coast generally, sometimes even in the inner harbours. The western shores are peculiarly rich; and that most favoured is the southern coast between Keflavík and Hafnafjörð. Desolate in appearance beyond all other regions, excepting the giant Jökulls to the south-east, the south-western peninsula has deserved the name Gullbringu Sýsla, "gold-bearing county," from its sulphur diggings and magnificent fisheries.² And a glance at the map will show the admirable spawning-grounds off the western coast.

A royal decree, dated A.D. 1292, forbids the sale of dried cod to foreigners on the ground of an expected famine. Before the Reformation, England fished for herself; and as late as James I. the Iceland waters, where few are now seen, employed 150 vessels. Little by little, France, with patient and strenuous action, established a hold on, and afterwards a monopoly of, the Iceland deep-sea fishery; thus securing, as in Newfoundland, not only a source of national wealth, but a powerful reserve of experienced seamen. Certainly, no better school for sailors can be imagined than the dangerous and intricate navigation of the Iceland Fjörðs. In 1859, there were 269 French smacks and ships, varying from forty to eighty tons burden, and manned by 7000 fishermen; in 1872, even after the Prussian-French war, these figures were 250, averaging ninety tonneaux, and 3000 hands (*Revue Maritime et Coloniale*). They are protected by two, formerly three, men-of-war, which cruise about, repressing disorders, and aiding their compatriots with spars, provisions, and medical comforts. Collisions between natives and foreigners

¹ Of course the "finny brood" is not without its folk-lore. There is a variety of "troll-fish" which, being ominous and unlucky, are thrown overboard by their captors. The same takes place farther south, as we learn from Lucas Dobes (*Færoe Reseratar*, Copenhagen, 1673).

² "Gullbringusýsla (literally, Goldbreast county) derives its name from some hills called Gullbringur (Goldbreasts), about twelve English miles distant from Reykjavik. They were so called because tradition says that the old Viking Egill Skallagrímsson there buried the treasure given him by King Athelstan for his assistance at the battle of Brunenburgh" (Jón A. Hjaltalín). This derivation is far more probable than the popular version given in the text: for a third interpretation see the *Journal*, chap. ii.

place when the latter are driven, by the weather, the winds, and the movements of the fish, within the prohibited limits, now one league (= three miles) from the coast: also the employment of gear often ends in a free fight. Forbes (Commander, R.N.) tells us (p. 208) that no such powerful reserve of armed seamen exists, except those engaged in the same occupation, and under similar regulations, on the cod-banks of Newfoundland.

For Consul Crowe (1865-66 and 1870-71), whose exhaustive Reports must be consulted for details which cannot find place in these pages, divides the Iceland "fisheries of the present day into three kinds, viz., the cod-fishery, shark-fishery, and whale-fishery."

According to him (p. 30), the large cod, here not a migratory fish, arrives during the winter near the island, and from February to March approach the south and west coasts to spawn, their course being from the west and south. The earliest and best fishings are made with early spring in the more temperate waters, and later northwards about latter June or early July, ending in August. The fish, where it keeps close to the bottom, is caught by small drift-nets; it is "more squat and plump, with a larger head," than those caught on the hook. Fishing with ordinary long lines, and deep-sea or hand lines, opens about April; the little extension given to it arises from the poverty of the people. From one to four lengths of a strong thick line, measuring sixty fathoms, are spliced together; and hanging six feet long are fastened at distances of from six to nine fathoms. The French can afford to use lines measuring 1500 to 2000 fms. The hook is the ordinary tinned English (No. 5), loaded with mussels. "In order to obtain a white flesh, the first operation is to rip up the belly, the head is cut off, and the body gutted, the liver and roe being separated and carefully kept. The backbone (blód-dalkr) is next extracted, as far as the third vertebra below the navel, after which the carcass is washed in salt water, and salted, one barrel (about 224 lbs.) being used to 352 lbs.

After lying in salt for three or four days, the fish is washed and laid out singly on the rocks to dry; it is protected from dust and damp, and is frequently turned by the women, that both

sides may be alike." For home consumption, the cod is split and hung up unsalted in the "wind-house." It is known by its shrivelled appearance, and, like the refuse heads, it is eaten uncooked. Although Hamburg pays 12s. 6d. per cwt. for fish guano, Iceland neglects this exportation. Finally, the cod-fish is sent in great part to Northern Europe (Denmark and Hamburg), and at least one-half to Spain and the Mediterranean; in fact, wherever the old world keeps Lent, and eats "baccalá." The French, although great consumers, of course supply themselves.

Details concerning the whale and the shark will be found in the Journal (chap. xiii). The supply of salmon from the northern and western coasts has been pronounced "literally inexhaustible;" yet mismanagement of rivers shows that they can greatly be damaged. The Laxá, near Reykjavik, in Mackenzie's day (1810), yielded from 2000 to 3000 lbs. per annum; in 1872, the catch was nearly nil, although in the summer of 1873 it somewhat improved. Salmon was exported as early as 1624, but in small and irregular quantities, till taken up by Messrs Ritchie of Peterhead and Akranes. The house still employs nine Scotch hands to preserve the fish caught in the Borgarfjörð, the embouchure of the great Hvítá. But, although salmon began to appear in the returns as a regular article of export, the 22,000 lbs. of 1858 fell to 4000 in 1868, on account of the river being overworked. During the early season of 1872, the take was small, but it afterwards so increased that tins were wanting for preserves: the superintendent at Akranes pays thirteen skillings (3¼d.) per lb. to the Borgarfjörð fishermen.

Iceland lacks the *Otaria* or eared seals, sea lions, elephants, and wolves, of which one species, the *O. Falklandia*, supplies such valuable pelts; all its Phocæ are inauriculate. Naturalists give six species, viz.:

1. *Phoca fetida*.
2. *Callocephalus vitulinus* or *Phoca littorea*, the common land-seal.
3. *Phoca barbata*, the great seal.
4. *Phoca Grœnlandica* or *oceanica*, the harp-seal.
5. *Cystophora cristata* or *leonica*, hooded or hood-cap seal (*Stenmatopus*).

6. *Phocula leporina*, haaf-fish or open-sea seal.

Old authors mention four kinds, viz., Rostungr (walrus), Vööruselr, Blööruselr, and Gránselr. Modern Icelanders preserve, like the Scotch,¹ three great divisions: 1. The land-seal, which keeps near the shore, and breeds there in spring; 2. The open-sea seal, that affects the distant rocks and reefs; and 3. The Greenland seal, which, during winter, haunts the Fjörðs. Further details will be found in the Journal.

The Iceland waters show four porpoises, viz.:

1. *Delphinus phocaena*, the common porpoise, smallest of the Cetaceæ.

2. *Delphinus bidens* or *bidentatus*, Baleine à bec, the bottle-head or bottle-nosed whale; the "ca'ing whale" of the Scotch-Scandinavian islands.

3. *Delphinus orca*, the grampus.

4. *Albicans* or white Beluga.

The following are approximate returns for fish and their products exported from Iceland in—

	1806	1849	1870
Fish,	650,000 lbs. (Danish)	...	...
Dried fish,	750,000 lbs.	938,080 lbs.	527,040 lbs.
Salt cod,	150 barrels	5,248,000 lbs.	7,507,840 lbs.
Cod oil,	807 "	} 3,259 barrels	9,424 barrels
Shark oil,	1,668 "		
Seal oil,	24 "		
Fish liver,	12 "	...	...
Salted salmon,	28 "	5,810 lbs.	245,392 lbs.
Salted shark skins,	1,568	...	...

The subjoined table shows what has been the export of cod and oil during the last six years.

¹ The three species on the west coast of Scotland are:

1. The Rawn, or Common Seal (*Phoca vitulina*), from five to six feet long; coat, tawny-white, spotted brownish-black on back and sides, with darker haslets and dusky-grey belly. The skin is of short bristly hair, but no fur.
2. The Tapraist, or Grey Seal (*Halichærus griseus*), somewhat larger than the former; the muzzle is black, and the coat dirty brown, looking silver-grey only when the sun strikes the recurved hair.
3. The Bodach, or Old Man (Halket, *Halichærus ?*), somewhat smaller than No. 1, and very easily tamed.

	1864.	1865.	1866.	1867.	1868.	1869.
Salt-fish, lbs.	6,296,224	2,917,024	3,855,104	8,026,656	3,916,000	5,243,744
Dried do. .	139,040	13,728	79,904	335,280	266,464	442,816
Salt-roe, brls.	2,390	452	770	1,962	578	977
Liver oil, .	6,572	9,520	8,952	13,083	8,757	7,744

The noteworthy point is the falling off of the salt-fish: perhaps the reason may be the expense of imported salt. During the last century the State established a saltern at Ísafjörð, but it was soon closed for want of patronage—Mr Consul Crowe remarks, “The very high temperature of the numerous hot springs which are quite accessible, would give an ever ready heat applicable for evaporation, and, I believe, a fresh attempt to utilise them would repay itself.” But salting is ever difficult.

It must be observed, of this table, that no account is kept of the quantity reserved for home consumption, which is doubtless large—the daily bread of some 70,000 souls. The general belief, however, is that the greater proportion of the catch is exported. Mr Consul Crowe thus calculates, according to the prices current during their respective years, the value of the average year's export.

	S. AMT.	W. AMT.	N. & E. AMT.	WHOLE ISLAND.	
	Value Rds.	Value Rds.	Value Rds.	Quantities.	Value in Rds.
Salt-fish, .	215,229	87,171	609	5,078,898 lbs.	303,009
Dried do. .	12,120	5,370	720	213,664 „	18,210
Salt-roe, .	5,910	30	...	1,188 brls.	5,940
Liver oil, .	33,352	65,890	101,068	9,105 „	200,310
Total,	266,611	158,461	102,397	...	Rds. 527,469

The following figures show the export of cod from the beginning of the seventeenth century when the system of monopolies was introduced.

In A.D. 1624 it was of lbs.	2,273,440	In A.D. 1806 it was of lbs.	1,440,400
„ 1743 „	2,057,680	„ 1840 „	5,375,040
„ 1772 „	3,091,200	„ 1855 „	7,705,280
„ 1784 „	2,845,920	„ 1868 „	4,202,240

The peculiarity of this table is the immense irregularity of the figures.

A few model establishments, like the Newfoundland, scattered round the island would teach the best and cheapest way of curing fish—now a barbarous process of turning, scraping, splitting, and housing, without “stages,” “platforms,” or other necessaries. The substitution of improved decked and half-decked smacks for the open row-boats actually in use, would save the time and toil at present wilfully wasted: improvement of the fishing lines is also urgently wanted. But the initiative must come from Denmark or, at least, from abroad; Iceland has remained so hopelessly in the background that she has not the means, even if she has the will, to help herself.

Piscator in Iceland will do somewhat better than Venator: he will find the lakes, lakelets, and rivers which do not issue directly from snow-mountains, rich in fish. The salmon ascends the streams as far as their cataracts; it is finer for the table than that supplied by our home market. The trout, speckled and white-fleshed, is not worth eating: the Forelle,¹ or red char (*Salmo Alpinus*), called “sea-trout” in the Scoto-Scandinavian islands, and elsewhere “salmon-trout,” is coarse and rank—too trouty, as the red mullet of the Levant is too mullety. Some travellers limit the weight to four pounds; others increase it to ten and even fifteen. At the outlet of the Thingvalla Lake the maximum of twenty-five, brought to bank in a few hours, was seven pounds, and only two were under six pounds; but the char does not give such good sport as the white-fleshed. Fishing may be had within a few hours of Reykjavik, and a day shadowed with dense clouds after a burst of sun will soon fill the basket. But the sport is uncivilised like the land. The fish either rush at the bait, “snapping at flies,” as Icelanders say, and swallowing the food before it touches water, or they lie sulking and will not be persuaded to rise. Some travellers curiously assert that in

¹ Forelle is German and Danish; the general Icelandic name of trout is *Silungr*, but, as might be expected, the nomenclature is rich. Hooker notices this char (i. 97). The “suburtingur” of Baring-Gould (Appendix, 423), a freshwater fish with pink-coloured flesh and sometimes weighing twenty pounds, does not appear in the Dictionary.

a region full of gnats and midges, the fish, and especially the trout, are "unaccustomed to flies." The contrary is the case, but the preference greatly varies; some find the only rule that darker colours are usually bit at most greedily; while others declare the fish fondest of artificial minnows, spoon-bait, or flies with any kind of tinsel, when not to be tempted by the ordinary loch fly. The author's friends tried in turns the black midge; the grilse; the black hackle, with silver wing; the Hofland's fancy, red body and partridge wing; the common cow-dung; the marsh brown; the red fly, with jay's wing; and the woodcock wing, with body banded red and orange. The fisherman should bring out the ordinary trout-hook and salmon-bait which he uses at home, always remembering that the spring in Iceland is a month to six weeks later than that of Scotland. He must not neglect to provide himself with gloves and face-veil to keep out the "midges" which, under that humble name, sting as severely as the mosquitoes of the tropics.

§ 5. INDUSTRY.

The principal occupation of the women is spinning yarn during the summer, and knitting and weaving in winter. A rude loom fixed and upstanding, not a little like that of ancient Egypt and of modern Central Africa, and worked, as in negro-land, by both sexes, stands in every farm.¹ A good hand can weave three yards a day. The *Vaðmál*² is the Danish *Vadmél*, and the *Wadmaal*, *Wadmal*, or *Shetland Clait*h of the Scoto-Scandinavian archipelago; it much resembles the tweeled cloth or frieze worn by the Leith fishermen and the *Media-lana* of Northern Italy.

There is only one kind of *Wadmal* generally worn, but in most parts of the island, and especially in the east, there are finer qualities used for "store-clothes" and woman's attire. The

¹ A description and plate are found in Ólafsson.

² The word *Vaðmál* (pron. *Vathmowl*) is derived from *Vát*, *Vót*, or *Voð*, stuff, cloth, weeds (e.g., widows' "weeds"); and *Mál*, a measure—"stuff-measure," because it was the standard of all value and payment before a coinage came into use (Cleasby). The form "*Wadmal*" will here be preserved, although England prefers "*Wadmill*," e.g., in "*Wadmill-till*" for waggons.

Ormadúkr is worked like drill, the Einskepta like twill. It is sold by the ell, or two Danish feet (= $2\frac{3}{4}$ English feet), at the following rates—the breadths being 2 to 2·5 feet and the length indefinite :

Coarse or common,	\$0 3 0 to \$0 3 8 per ell.
Middling,	0 4 8 ,, 0 5 0 ,,
Fine and thin (skarlat),	0 5 0 ,, 1 0 0 ,,

The manufacture varies in the several Quarters. The usual colours are grey, black, light-blue, and murret (Icel. Mórautt), the moret or russet-brown of the undyed wool; white is sometimes seen, but not the red—now confined to tradition. It is excellent stuff, durable, and, after a fashion, waterproof. The moderns prefer to this home-made article the cheap broad-cloths and long-cloths of European machinery; and so in West Africa we find the admirable “native” *pagnes* becoming too expensive for everyday work.

Details concerning the goldsmith’s trade will be found in the Journal. The principal is silver filagree, which will compare with that of Norway, but poorly with the work of Genoa, Malta, Delhi, and Trichinopoly.

A few hands find employment as pilots.¹ They are licensed

¹ The following is the translation of the “Advertisement to mariners who enter the harbour of Reykjavik :”

“In pursuance of the laws, and under the punishment fixed by law, the following rules are to be attended to by the masters and crews of vessels that touch at the port of Reykjavik.

“1. As suspected, with regard to health, are considered all vessels (a) coming from countries or places where pestilential or epidemic diseases are found; (b) having merchandises on board, which are brought from such countries or places, or there packed up; (c) having had during the voyage, or having at the arrival, any sick person on board, whose disease can be considered as ill-natured or contagious; (d) having had, on the sea or near the land, communication with any vessel from suspected or infected places. Such vessels are bound, at the arrival to the harbour, to hoist a green flag, or, in default of such a one, their national flag on the main-top, with which they remain lying, until further order is given.

“As to other vessels, against whom there is no reason for suspicion of this kind, the masters thereof are peremptorily enjoined to land first at the bridge of Quarantine (distinguished by a green flag), to be submitted to the legal examination of the state of health of their crew, and to produce their bill of health, if they have any. Before this is done, nobody from the vessel is permitted to go on shore. The landing can take place from 8 o’clock A. M. to 8 o’clock P. M.

“2. It is the duty of the master, when arrived on shore, instantly to present himself in the Police Office for showing there his ship’s documents and clearances. Loading or unloading is not permitted before this is performed, and Icelandic maritime pass redeemed. Commerce on board with the inhabitants (‘speculant-

without fee by the *Sýslumenn*; and in the district of a professional pilot, men cannot ply the trade without this permission. Found at all the commercial establishments, they are generally farmers; he of *Vopnafjörð* is a cooper: a flag hoisted at the fore is the usual signal. The pay is not settled; upon the eastern coast they demand \$2 per mast; the "Queen" paid \$6, her funnel, it is presumed, being counted as a mast. The *Reykjavik* pilot may make £10 per annum. All these gentry come or stay away as they please, even when the Danish steamer heaves in sight.

The post office, that best of standards for taking the measure of civilisation, also employs a few hands. The postmaster-general resides at Copenhagen; the departmental-chief at *Reykjavik* is *Hr O. Finsen*, an *Icelander*, brother to the *Amtmand* of the *Færoe Islands*. He keeps a book-store, and sells stationery, plain and fancy, in the *Parson's Green*, opposite the *French Consul's*; he speaks English, and nothing can exceed his civility to strangers. The tariff which he gave the author was as follows: Ship letters weighing three Danish kvints, or half-an-ounce Eng-

trade') is not permitted, except after a previous information thereof to the *Police-master*.

"3. When any of the crew commits disorders on shore, it will be examined how far the master himself can be considered as responsible for such offences committed by his crew, especially when he has permitted them to remain on shore till late in the evening or night.

"4. In order that the breeding of the *Eider ducks* in the islands in the neighbourhood of the harbour (*Viðey*, *Engey*, etc.) shall not be disturbed, no firing of cannons, except in cases of distress, or as to men-of-war, in what the service exacts, is permitted within half-a-mile Danish (about two and a half miles English), or of guns within a quarter of a mile Danish (one and a quarter English) from the said islands. Nor is it permitted to go on shore on the uninhabited islands surrounding or near the harbour (*Effersey*, *Akurey*), without a special permission from the owner; hunting or disturbances of the breeding of the birds in these places are, accordingly to the laws concerned, punished with peculiar severity.

"5. It is prohibited to take ballast on the ground or beach belonging to the town, except in places pointed out by the *Policemaster*. Throwing overboard of the ballast may not at all take place on the harbour, and not in other places than such as will be pointed out by the police.

"6. Water to the use of mariners may only be taken in places pointed out by the police. As water money every vessel of the burthen of above forty tons pays for each voyage one rixdollar Danish; of less burthen, half a rixdollar.

"Given in the *Police Office* of *Reykjavik*, July 4, 1870,

"(Signed) A. THORSTEINSON.

"N.B.—This advertisement, which is delivered by the pilot, and from the *Police Office*, is made for the use of sailors. Wanting notion of it does not exempt from liability to punishment for offences, mentioned or not mentioned here, that are committed by mariners."

lish, pay 14 skillings for three postage stamps, one of 8, and two of 3 skillings, a total of 3½d., which is exorbitant. A similar sum is charged for every three additional kvints, or 8d. an ounce. Newspapers pay 3½d. for eight kvints; parcels 1s. 6d., and larger packages 9d. per cubic foot.

“Postal delivery” is of course unknown, even at the capital; the same was the case at New York fifteen years ago. The inland post was very poorly managed, but something was done in 1872 to remedy the main grievance. At Copenhagen the ship-postage could be paid, not the land transit; consequently the letters for the out-stations, unless re-posted by a friend, lay for an indefinite time at the Reykjavik office. It was common to see despatches written in January received on the eastern coast in July. The Althing has now established branches at the several stations where the steamers stop; and the sum of \$30 per annum is paid for an immense amount of work; perhaps Iceland is not singular in this matter. There is a northern courier-road which takes five days viâ Reykholt and Arnarvatnsheiði to Akureyri, but in winter it is impassable. No regular overland communication connects the western with the eastern coast, which the postman visits a few times during the year; and if there be any duly prepaid letters for the dangerous southern shore, the same courier will run that way.

A favourite occupation in Iceland is gathering the eider down (*Æsar-dún*)—the *Édreðon* so celebrated as a non-conductor of heat. It is best in the coldest climates, like Greenland; here it is good, especially after a wet season, when the birds lay most. In the Færoe Islands, and off the Northumberland coast, it is not worth collecting for sale; and the same is the case in the Orkneys and Shetlands. For instance, the people of Rousay, an island of some thirty square miles, do not preserve their “dunters” (*Somateria dispar?*); they eat the bird after the breeding season, in August or September, and they pickle the eggs for winter use. The eider is found in the Pacific, but only on the northern coasts of Asia and America.

The first lay of eggs, beginning in May and ending six or seven weeks afterwards, is from four to six; the second from two to four, and the third from two to three; if not carried off,

they will accumulate from ten to sixteen. The duck gives about an ounce of down each time the house is robbed, or three nests yield a total of half-a-pound. After the third *ponte*, the drake contributes an ounce and a half of whiter material, easily distinguished; and if further outrage be offered, the unhappy couple quit the bereaved home. Older authors speak only of eggs (egg-ver), never of the down; and it is believed that the English trade in the fifteenth and sixteenth centuries brought the name and the article into foreign markets. Jón í Brokey (born A.D. 1584), who learned the art and mystery of cleaning in England, introduced it here; and the rude process is still preserved. An open sieve is made of yarn stretched over a hoop, and the feathers are stirred with a pointed stick. Thus the finer material (*gras-dún*) remains above, the coarser stuff (*thang-dún*, or seaweed down) and the heterogeneous matter fall through—this operation reduces the yield to about half. The work is done by men and women, in autumn and winter. The *Édredon* taken from the dead fowl loses elasticity, and is of little value.

The annual supply of Iceland was 2000 lbs. in 1806; it gradually rose to 5000 or 6000, valued at about £5000; and in 1870 it was 7909 lbs. The two islets, Viðey and Engey, off Reykjavik, have produced as much as 300 lbs. in a year. About 1½ lbs. are required for an average coverlet. The clean lb. in 1809 cost \$3; in 1854 (Pliny Miles), 50 cents = 2s. 2d.; in 1860 (Preyer and Zirkel), from \$2.66 to \$4.53; in 1862 (Shepherd), 12s. to 15s.; and in 1872, \$7 to \$8. As the cleaned material sells in England for 18s. to 19s. per lb., and the uncleaned for 8s., little profit can be made out of it. In "Some Notes on Greenland, etc." (Alpine Journal, Aug. 1873), Mr Edward Whymper says still more: "At Copenhagen, eider down is worth 20s. per lb., yet in London, quilts weighing 4½ lbs. are sold for 36s. How much chopped straw and old feathers has the British tradesman to insert in order to realise his honest profit?"

Eider down is the *haute volée* of its kind. Most of the sea-fowl, especially the Lundi or puffin (*Fratercula Mormon*), when purified of its peculiar pediculus, supply feathers for exportation. Since 1866, this branch of industry sent annually some 18,000 or 19,000 lbs.; and in 1870 it was 32,081 lbs. Almost every bed has

its feather quilt; and the Devonshire superstition that no one can die comfortable on a mattress stuffed with goose feathers is quite unknown.

Iceland moss (*Lichen Islandicus*, *Cetraria Islandica*), by the people called Fjalla-grös (neut. plur.), is still an article of export. As the native name shows, it is the gift of the hills. We find it on the Brocken, in the Carpathians, the dolomites of Tyrol and Italy (where it is called "Lichene"), and in other parts of Europe. The brown-green leaf, with deeply palmated edges, much resembles sunburnt and withered dandelion. It must be washed in several waters, to remove the bitter astringent taste, before it is eaten with cream and sugar. Of late years, it has been partially superseded by the amylaceous "Carrigeen Moss," grown on the green terraces of the Ardmore Cliffs. This succedaneum, after being sun-dried, and allowed to receive one or two showers, is again dried, packed in bags, prepared for sale, and used to make tea or blancmange. Uno Von Troil (p. 108), or rather Eggert Ólafsson, gives a list of five lichens, each with its Icelandic name; and Baring-Gould (p. 438) names eight lycopods. Peirce (p. 82) distinguishes this "Fell-grass" from a "sort of fjall-grass, which is used for making gruel."

A small quantity of wild Angelica (*Archangelica*; Icel. Hvönn), though held to be poisonous in the United States, is exported for comfitures; in Iceland, it no longer, as of old, flavours ale, nor is it used as a vegetable. The warm root is chewed, or put into soup; and when cut into pieces, it is stored in bottles of brandy and schnaps, giving an aromatic taste. The Umbellifer, grown near houses, is less valued than the hill plant; animals seem to despise both. The Færoese "Quonn" has a stem thick as a man's wrist; the bitter, astringent rind is removed before the plant flowers and becomes woody, and the stalk, preserved in sugar, is eaten like the leaves, with sweetened milk.

The simples collected for use are the Holta-rót (*Silene acaulis*, or moss campion); the Alchemilla or Burnet, a sanguisorb; the Geldinga-rót (*Statice armeria*); the Speedwell (*Veronica officinalis*); and various gentians. The "ptarmigan-leaf," or mountain avens (*Dryas octopetala*, the Holta-Sóley of older travellers, and the modern Rjúpa-lyng) makes a tea good for jaundice; the

root also is eaten. The half-digested flowers of the blaeberry (*Vaccinium myrtillus*) and the bog-whortle (*V. uliginosum*) are taken from the ptarmigan's crop to make ptisane. The reindeer moss (*Cenomyce rangiferina*), a small pale-green species, with hollow stem, is gathered for sheep-feeding. The wild geranium also produces a blue tint, of old called Odin's dye.

Of late years, a little business has been done in women's hair for the European market. First three Jews came out, then two, and lastly one was found sufficient to manage the trade—we shall meet him in the Journal. They cleared about £300, exaggerated to £3000, especially by the *blond cendré*, the most expensive item of the £300,000 annually imported by England. As a rule, Iceland demands, instead of supplying, false hair; in 1871 about 200 lbs. were introduced in the shape of chignons and braids.

Another produce of the island is Iceland spar, which is mentioned in Fortia's "Sweden" as "calcareous spar which doubles the object." This "Silfr" or "Silbr-berg," the "Calcite" of Dana, is crystallised carbonate of lime, useful for polarising-instruments. The main axis being disposed at a different angle from the minor or bi-axis, causes it to be doubly refracting; moreover, the former expands, whilst the latter contracts. Thus all blood-crystals, to specify no other rhombs and hexagons, show two parallel lines where only one exists: the white spaces receiving the light transmit it to the retina.

Calcite is produced chiefly on the eastern coast, but its existence is reported in many places where the peculiar tenure of ground deters the farmer from attempting to better his property. The author heard of it on the slopes of the Esja and at Berufjörð. The principal mine is at Reyðarfjörð—not at Seyðisfjörð as generally asserted. The present contractor is a certain Hr Tullenius, who, by private arrangement, pays one-fourth to the Crown and three-fourths of the lease to the Church in the person of his father-in-law, pastor of the Hofs parish. His establishment is at Eskifjörð to the north-west of Reyðarfjörð, and he transports the material in winter by sledges to the coast where it is shipped direct for England.

The spar is taken from calcined basalt, apparently infiltrated

there in small veins alternating with a green mineral supposed to be the plutonic stone transformed; the surface is often rough with a zeolitic or calcareous coat. Large pieces have been found: Pajkull mentions one in the Copenhagen museum which was bought for \$400 and weighed 176 pounds. Till late years it was rare and expensive; the geological museum in Jermyn Street contained (1872) only a shabby little bit, and a certain professor bought for £6 what was worth £60. In these days Mr T. Tennant (naturalist, the Strand) and Mr J. Browning (optician, Strand and Minorities) can produce hundreds of pounds lying useless. The smaller pieces now cost one shilling to one shilling and sixpence per pound. The best and most valuable specimens are the large prisms; the worst when cut show spotted surfaces or prove full of flaws running right through; some, like amber, contain red clay, drops of water, and other heterogeneous substances. They can be tested only by the electric light, and even that sometimes fails to detect faults which appear after working. A friend commissioned the author to bring home a large specimen, purchaseable after trial—he knew little of the islandry. It is dearer, as usual, in Iceland than in London: the people think that all the world wants their one popular mineral.

The following branches of industry still await development:

Iron-ore certainly exists, but it is hard to see, with the present scarcity of coal and wood, what use can be made of it: should peat companies prove a success, it may still appear in the market. Copper has been reported to occur in the jasper formation, and cupriferous specimens have, it is said, been brought to Reykjavik from the great Hrauns of the Skaptárjökull, the centre of supply being at the Blængr mountain in the Vestri Skaptár Sýsla. Professor Winkler of Munich found, *on dit*, quicksilver at Möðruvellir on the way to Akureyri. The Tindastóll Range, west of the Skagafjörð, has yielded galena embedded in amethyst-quartz: and we shall see silver glance. The cryolite, so abundant in Greenland,¹ is found here and in Norway: the late Mr Ander-

¹ The "Napoleon book" (p. 364), gives a sketch of a "mine de criolithe:" one of the veins embedded in granite is eighty feet thick. Mr Walker (Peirce's Report, p. 3) is mistaken in asserting that cryolite is found only in Greenland,

son met with large blocks, they say, at Vestdalsr; and the Abbé Baudoin assured the author that he had seen it on the Seyðisfjörð, which opens to the north-east, near a stream north of, and about twenty minutes' walk from, Vestdalsr. There are large supplies of fine obsidian, jasper, zeolites, and chalcedonies.

Mr Consul Crowe (Report, 1870-71) supplies the following statistics of "domestic industry," which, however, is confined to woollen articles :

	1864.	1865.	1866.	1867.	1868.	1869.
Two - threaded guernseys, pieces,	85	149	50	134	185	85
One-threaded do. do.	22	...	...	...	...	59
Two-threaded stockings, prs.	41,561	84,847	87,422	41,025	60,976	76,816
One-threaded " "	1,008	298	412	884	908	1,092
Socks, " "	13,254	37,101	10,930	7,673	5,247	28,431
Mittens (one-fingered), " "	14,672	14,736	26,904	53,267	29,873	55,601
" (full-fingered),	1,623	1,325	744	825	976	69
Wadmal, yards,	176	549	249	805	569	280

but doubtless the largest known supplies are there, the development being due in great part to American (U.S.) enterprise. The natives used it only in the pulverised state—like quartz—to "lengthen out" their snuff; and similarly the "Red Indians" of the Brazil utilised their diamonds as counters. This double fluoride of sodium and aluminium, popularly called natural soda, is a mineral of ever increasing value; it is employed in the manufacture of soda and soda-salts, hydro-fluoric acid, fine glass, and earthenware almost infrangible; the residue makes a flux ("Steven's flux," etc.) capital for the treatment of difficult metallic ores. Perhaps the chief use is in the manufacture of aluminium and its alloys, a noble metal which can be carried to white heat before it oxidises, and whose brilliancy is unaltered by sulphuretted hydrogen, water, acids, salts, and organic matter. The price till lately was about one-third that of silver, but increased cheapness has extended the use, especially in coinage and jewellery. Tenacious as silver, sonorous, easily melted and moulded, about as hard as soft iron, and one-third the weight of zinc; it is valuable for watch-cases, mirrors, spectacle-frames, opera and field glasses, hand-bells, pendulum-rods, small weights and balances, chemical apparatus, instruments of precision, and articles where lightness is required. It has also been converted into dinner services and cooking apparatus, in which, unlike tin and copper, it is absolutely harmless. The common form is *bronze d'aluminium*, with one of that metal to ten parts of copper; the tenacity of the alloy is about that of steel.

Of which the annual exported value is :

	S. AMT.	W. AMT.	N. & E. AMT.	WHOLE ISLAND.	
	Value Rds.	Value Rds.	Value Rds.	Quantities.	Value.
Two-threaded guernseys,	...	...	\$95	114 pieces	\$95
One-threaded "	\$6	\$3	...	14 "	9
Two-threaded stockings,	57	120	14,024	48,691 pairs	14,201
One-threaded "	...	32	112	767 "	144
Socks, . . . . .	...	9	3,554	17,106 "	3,563
Mittens (one-fingered), .	93	497	2,119	32,509 "	2,709
" (full-fingered), .	...	23	286	927 "	309
Wadmal, yards,	15	9	188	657 yards	212
Total,	171	693	20,378	...	\$21,242

The same Report shows :

“ Total value of collective exports, Rds. 1,103,936
 Equal to, for each individual, , 15·88

“ The value, therefore, of an average year’s export of fish, farm-produce, and domestic industry was in 1870 \$1,103,936 ; to this may be added the other known articles of export, such as ”—

Eider-down,	Rds. 38,064
Feathers,	„ 9,848
Horses,	„ 10,472
Salmon and other fish, swan-down, fox-skins, etc.,	„ 96,064
Making the total exports from the island,	\$1,200,000
Or, sterling,	£133,333
Equal to about £1, 18s. 4d. per head of population.	

The conclusion to which the reporter arrives from these tables is, that “ nearly all the cod and roe is fished and exported from the western districts, and that the shark fishery and export of liver-oil takes place from the north side.

“ On the other hand, the cattle and sheep-rearing, whose produce is greater than that of the fisheries, centres in the northern and eastern parts of the island, where the excellent natural grass pastures are formed in abundance.”

§ 6. EMIGRATION.

Modern emigration was not attempted till fourteen years ago, and the islanders chose the worst destination they could find—the Brazil. In 1862, the trial was renewed by some eighty head, with the same want of success, except in two or three instances; and ten years later, about fifty left to “plant man” in the tropical empire. The report is, that they were decimated by cholera at Hamburg. A far more auspicious movement was made to Minnesota, Milwaukee, and Wisconsin: the head was a retired trader, Einar Björnsson, who bought an island in Lake Superior. Shortly before the author’s arrival at Reykjavik, a small party of fourteen or seventeen had sailed, not 714, as asserted by certain English papers. The later emigrants sent home glowing reports of the country and, although those in the towns were not so successful, the rural settlers did remarkably well. And the movement will be beneficial to the islander, who, instead of dawdling away life at home, will learn to labour and to wait upon a more progressive race.

In the summer of 1873, these pioneers were followed by 200 to 220 recruits, of whom a portion preferred Canada, and is said to be doing well. The autumn of 1874 sent out 340; the men were employed on the Toronto railway, and some 40 women went into service. As yet, emigration has not had a fair trial; and Icelanders, a pastoral and fishing race, are wholly unaccustomed to agriculture and manufacturing. At the same time, they have the advantage of being to a certain extent mechanics as well as labourers. The Norwegian papers, which are translated and spread over the island, strongly recommended the movement; consequently the authorities at Reykjavik, and the official class in general, as strongly opposed it; but, it need hardly be said, their prejudices are not shared by the distinguished Dr Hjaltalín. If this be, as we apprehend, the movement of a people seeking, like the Irish and the Basques, a new “racial baptism,” it may assume important dimensions. It might well be worth while for the Dominion to secure a number of these sturdy and strong-brained

Northerners, who would form admirable advanced posts along the valley of the Sasketchawan. The author's companion in travel, Mr Chapman, had the acuteness at once to see the use that might be made of the movement, and proposed recommending the Government of New Zealand to take advantage of it. The common order of Icelanders show the greatest interest in America, and strangers are always subjected to cross-examination on the subject. If the current be allowed to set that way, efforts to arrest it will not be easily checked: for many years the author has wondered how and why a poor man ever lives in Europe, or a rich man in America.

SECTION VIII.

TAXATION—COINS, WEIGHTS, AND MEASURES —PRICES AND IMPORTS—COMMUNICATION AND COMMERCE—VISIT TO THE STORE.

§ 1. TAXATION.

The system has the serious drawback of being complicated and troublesome; on the other hand, it dates from olden days, and is familiar to the people. The island is not, and of late years never has been, self-supporting. The whole revenue does not exceed \$44,000, and the expenditure for official salaries, ecclesiastical and legal establishments, and education, being about one-third more (\$62,000), the Home Government must supply the deficiency.¹

It has before been observed that property in Iceland, as in older England, is measured not by extent, but by produce, the area in fact never being ascertained. The basis of calculation is the ell of Wadmal, or its equivalent, two heads of fish and a

¹ This again is the popular assertion which has been strongly opposed by Mr Jón A. Hjaltalín (see note at end of Section III.). The reader, however, will observe that the patriotic Icelander confesses to the figures in the text, as matters now stand.

fraction bringing it up to nearly 2·50. The hundred¹ was either *tísaett hundrað* (the decimal hundred, 10×10), introduced with Christianity, and now chiefly used in ecclesiastic and scholastic matters, or *tólfrætt hundrað* (duodecimal, 12×10), the latter being the root of the English system, which has hitherto successfully resisted foreign innovations. Hence our farmers long retained in selling cheese the great hundred (120 lbs.) and the little hundred (112 lbs.) The old adage says—

“ Six score of men, money, and pins,
Five score of all other things.”

And the “shock,” or half (60), is preserved in the German threat, “Shock schweren noth” (You want five dozen)!

In old times, there was a double standard: (1.) The *hundrað talið*, hundred (of wool, etc.) by tale = 120 ells; and (2.) The *hundrað vegið* (weight) or *sifrs* (of silver), in rings, coin, and so forth, the latter = $2\frac{1}{2}$ marks = 20 ounces = 60 örtugar, the half örtug being probably the unit. The phrase, “Six ells to an ounce” (*i.e.*, 120 ells = 20 ounces), refers to silver and Wadmal at par; but, as the coinage was debased, the 6 became successively 9, 10, 11, and 12.

In 1810, the absolute value of the *hundrað* represented:

One milch cow or two horses (each = 60 ells).

A proportionate number of sheep (= six to eight) and lambs (= eighteen); each milch ewe = 20 ells in spring, and each wether = 10 ells.

One fishing-boat, with six oars, nets, and lines.

\$46 in specie.

In 1872, the proportion was:

One bull, bullock, ox, or cow, calf-bearing or not.

Two horses or three mares, four years old or upwards; riding-horses = two-thirds of the hundred.

Six milch or eight milkless ewes; six wethers, three years old, and older; ten wethers, two years old; or eighteen sheep, one or two years old.

¹ The political sense of 120 franklins, several of which composed the English shire, is unknown to Iceland.

All boats, large and small:¹ the oars are not counted, but the nets and lines which follow the boat are reckoned at half-a-hundred. The half-decked vessel, with nets and lines, ranges from 100 to 150.

\$40 in specie: \$20 represent the half hundred, and nothing below it is cessible.

240 head of fish, which must weigh 2 lbs. In 1770, 48 head were = \$1 (specie); the value often changes, but the modern rate of the Fiskvirði (worth) may be assumed at about $12\frac{2}{3}$ skillings (or in round numbers, 3d.).

In 1770, 24 ells of Wadmal = \$1: now the ell may represent $4\frac{1}{2}$ skillings.

Former travellers represented the direct taxes to be tithes, church and poor rates, with the Sýslumenn's stipends (\$150 specie, according to Hooker). They also divided the items of taxation into five, viz.:

1. Skatt, Scat, or tribute,² originally the poll-tax levied by the king on the franklins (Skattbændr), and afterwards more generally applied. This cess is paid when movable property in hundreds (cows, sheep, etc.) exceeds the number of individuals composing the household, or to be maintained upon the farm. De Kerguelen describes it as a "tax of twelve francs contributed by heads of houses whose income surpasses sixty francs." In 1810 it was represented by 4.50 skillings per ell of Wadmal, converted into specie, or so many fishes, twenty-four to thirty head being = \$4 to \$5. In 1872 it is neither more nor less than forty; for instance, a household of seven souls and eight hundreds pays forty fishes, and the same sum would be levied upon seven souls and ten hundreds. All officials, priests, and candidates of theology, are exempt from this tax.

2. Gjaf-tollr (gift toll) was so called because at first it was supposed to be, or rather it was, a voluntary payment to the Sýslumaðr and Prófastr for overlooking or winking at small offences punishable by a fine. It is said to have been paid as

¹ The "Sharker," moreover, pays a variable sum (say 24 skillings) per barrel of oil as an hospital tax, and this is now appropriated to the district physician.

² Compare the German Schatze and our Scot in Scot-free, Scot and Shot; *Kóna-skatt* would be Peter's Pence.

early as 1380. The French traveller, who held it to be a voluntary contribution for supporting legal establishments, lays it down at sixty centimes to six francs. The rate of Gjaf-tollr, which also is levied only on movable property, now represents :

1 fish per	. . . 50	5 fish per	. . . 400
2 "	. . . 100	10 "	. . . 500 to 900
3 "	. . . 200	12 "	. . . 1000 to 1200
4 "	. . . 300	20 "	. . . 1200

And above 1200 nothing more is taken.

3. Lögmannstollr dates from the days of Icelandic independence, and, representing the salaries of the Presidents of Things (assemblies), was preserved in memory of the ancient grandeur of the island. Formerly, it was thirty-five centimes per head of house. It is independent of hundreds, and paid in money at the rate of $6\frac{1}{2}$ skillings per farm. In case of sub-letting, it increases; for instance, if a proprietor leases half his land to another man, both pay $4\frac{1}{2}$ skillings. The Sýslumaðr receives one-sixth for the trouble of collecting it, and the rest is paid into the public Treasury of Reykjavik under the Landfógeti.

4. Althingistollr was a property tax paid, according to Cadastre, for the support of the Diet. Each deputy formerly received nine francs per diem, and now \$3, besides his travelling expenses coming and returning home.

5. Tíund, or tithe, paid to the Crown: these have been discussed in the ecclesiastical section.

The present complicated system will best be explained by a copy of the Thinggjaldskvittunarbók or Receipt Book for the Thinggjald, the general taxes. Each large farmer keeps one, and the forms are printed either at Reykjavik or at Akureyri. The following will be filled up as the specimen of cesses levied upon a large merchant who hires a farm from the Church :

	FÓLKSTALA (number of household), 22.	JARÐARHUNDRAÐ (landed property), none.	LAUSAFJARHUNDRAÐ (movable property), 27 hundreds.		
			Fiakar (fishes).	Rixdollara. \$	Skilling (estimated at 96 : \$1)
			40		
r,			20		
royal tithe),			16·2		
Til Samans (total),			76·2	9	50½
instollr,			4½
ústollr,			4
rsjóðsgjald,			...	2	24
risgjald,			...	0	0
gjaldið samlagt (grand total),				11	83

Skattur forms the chief item of the income of the Sýslu-

Lögmannstollr is still devoted to paying law taxes.

Thingústollr, or charges for provincial assemblies, is four skillings; the householder where the meetings take place pays the same sum, and receives it back as part of the hire of the room. It directly derives from the old Thingfarar-kaup travelling to the Parliament, as judges, jurors, witnesses, and is levied upon every franklin; and those who did not pay it either sit as arbiter nor as "neighbour." The Thinggjafi (Thing-performer) received a sum proportioned to the number of days' journeys he and his retinue had to travel.

Jafnaðarsjóðsgjald is also called Sakamálatollr, *i.e.*, a regular fund paid to the Amt or Quarter for public purposes, such as criminal prosecutions, and other unforeseen expenses.

Every man who has one and a half hundreds in movable property must pay it, and the Amtmenn settle every year the sum required, in proportion appertaining to individuals.

The merchant contributes no Althing-money, because he is not a landed proprietor. This tax is taken from all landed property in the country, except that belonging to the Crown and the Church; three-fourths are paid upon immovable, and the remaining one-fourth upon all movable possessions. Every

year, the Hreppstjórar, aided by two landowners of the parish, estimates how much Landskyld (rent) is paid either by the owner of the farm or by his tenants and sub-tenants. The Stiftamtmaðr (governor) having decided upon the sum required, the amount is duly reported on landed property.

In addition to these taxes the Iceland farmer pays three other tithes—viz., to the priest, the Church, and the poor (16·2 ells, or \$4 each)—besides a ljóstoll or light-tax = 4 lbs. of tallow, to illuminate the church: its equivalent being seventy-two skillings. He feeds one lamb for the priest (lambsfóður, or heytollur—hay-tax), or pays its forage = \$1, 48sk. Those who own property, movable or immovable, to the amount of twenty hundreds, must also make offur (offertory) to the priest, amounting to not less than \$3. Those who own less property than five hundreds, work one day for the priest during the hay-making season, or pay an equivalent of \$1, 4sk. By the law of 12th February 1872 an annual tax is levied on landed property, 1½sk. per hundred. For the money thus raised model farms are to be established and young men taught farming. By far the heaviest item of taxation is, however, the poor-rate (fátækra útsvar), over and above the poor tithes, for it is nowhere less than equal in amount to all the other taxes put together, and in some parishes it is even double the amount of all the other taxes. This tax is levied by the Hreppstjóri at the autumnal parish meeting. The pauperism is an evil fraught with imminent danger to the island, and requires the immediate attention of the legislature. It need hardly be suggested that emigration is the perfect cure for the sturdy vagrants who infest the land, and that free passages to America, or elsewhere, would be well laid out.

The taxes in kind (Wadmal, yarn, woollen stuffs, fish, butter, hay, oil, cattle, sheep, tallow, hides, skins, and all vendibles) are estimated by the Hreppstjóri, who transmits his account to the Sýslumaðr, and the latter checks the report by referring to the mean value of the parish. He then commutes what is paid to him into money, through some trading firm; and, as he is liable to loss by the fluctuations of the market, he is allowed to retain one-third by way of remuneration. A "crack collector," to use an Anglo-Indian term, may make as much as \$3000 per annum

—though less than half that sum would probably be a high average.

The *Sýslumaðr* again reports to the *Amtmaðr*, who checks his accounts by reference to the mean amount of previous revenue, whence results the *Kapitulstaxti verðlagsskrá*, or chapter value. The specie is then remitted to the *Bæarfógeti*,¹ or assistant treasurers. These officers are three in number; at *leykjavík*, where the holder is also the *Sýslumaðr*, at *Ísafjörð* (west), and at *Akureyri* (north). Thence the total revenue finds its way into the hands of the *Landfógeti*, or chief treasurer.

The taxes on movable property are considered just and equal. Those on land are not, because the meanest soil pays as much as the best. Another grievance is the unequal distribution of the poor-tax, which is managed differently in different Quarters. For instance, a clerk with a salary of \$300 per annum will be charged \$10, whilst the priest of the same parish with treble the revenue pays only \$20.

§ 2. COINS, WEIGHTS, AND MEASURES.

Accounts in Iceland are kept in skillings, marks, and dollars (*rigsbankdaler* or rixdollars, and specie). The following table shows the comparative English value in

1809.		1872.
1 Skilling = 1 halfpenny	= {	1 farthing and one-eighth, in round numbers a farthing.
6 Skillings or 1 mark = 8 pence, the local shilling	= {	4 pence and four-fifths, say fourpence halfpenny.
6 Marks or 1 <i>Rigsbankdaler</i> ² = 4 shillings	= {	2 shillings and 3 pence, or 60 cents (U.S.), the local half-crown.
2 <i>Rigsbankdalers</i> = 1 specie dollar = 4 shillings and 6 pence	= {	4 shillings and 6 pence (the crown).

The silver mark originally was worth eight ounces (*eyrir*)³

¹ The Icelandic word is *Fógeti* (low Lat. *Vocatus*, Germ. *Vogtie*, a bailiwick, hence "*Landvogt*" *Gessler*, which dates from the fourteenth century (*Cleasby*). It corresponds with the *Fowd* and *Grand Fowd*, chief magistrate of the *Scotocandinavian* islands.

² In these pages "*§*" always refers to the rixdollar, which, like the *Brazilian milreis*, is half the *milreis* of Portugal or the dollar of the United States.

³ In the plur. *Aurar* is supposed to be corrupted from *Aurum*, as the coins first known to Scandinavia were Roman and Byzantine, Saxon and English. It was

of pure silver; and the *eyrir* = 6 *peningar* = 3 *ertog*. Each of the eight parts represented six ells of *Wadmál*, and thus the total was = 48 ells. In old times we read of the *Örtug*, a coin worth one-third of an ounce (*eyrir*) or twenty *peningar* (*pence*). In these days the *Ort* is worth only one-fifth of the specie dollar, and, being a Norwegian coin, it does not circulate in Iceland. The traveller must beware of Norwegian money, especially paper, which may be offered him by the Leith agent of the Danish steamer—it is perfectly useless, and *Hr Salvesen* must know it.

The following is the coinage current on the island:

Copper.—One *skilling* and a few old two-*skilling* bits.

Base metal.—Two (the penny), three, four, and eight *skillings*, the latter being half a mark. Of half-marks there are three or four issues. The old is inscribed “2½ *Skillings Schleswig-Holstein’s Courent*,” the second bears only “8 *skillings*,” and the third, or newest, has the figure 8 above and 2 below.

Silver.—One mark: of this coin also there are three issues; two old, marked respectively 5 and 6 *skillings*, and one new, marked 16 *skillings*. Two marks: now rarely seen. Three marks, or half the *rix-dollar*: very common and very useful. Four marks: an old coin almost obsolete, and generally called “one-third specie,” because equal to eight *rigsbank skillings*. One specie dollar: presenting our crown, and very cumbersome.

According to a royal proclamation of 25th September and 29th December 1873, a new coinage is to take the place of the old one next year. It will consist of

SILVER MONEY.		
NEW COIN (Crowns).	OLD ICEL.	ENGLISH EQUIVALENT.
1 Króna (100 aurar)	= \$4 3 0	£0 1 1½
1 Eyrir	= 0 0 0½	0 0 0 ¼ farthing.
4 Krónur	= 2 0 0	0 4 6
2 „	= 1 0 0	0 2 3
50 Aurar	= 0 1 8	0 0 6½
25 „	= 0 0 12	0 0 3½
8 „	= 0 0 4	0 0 1½

applied to coinage opposed to *baugr*, gold or silver rings. Hence the phrase “*Aurar ok óðal*,” money and land. *Ær* or *Ör* was probably the name of a small coin; so the modern Swedish *Öre* is a coin worth less than a farthing, and the Norsk *Ort* (contracted from *Örtog*, *Örtug*, *Ærtog*, or *Ertog*) is the fifth part of a specie dollar (*Cleasby*). Upon the ancient money of Iceland the reader will consult *Dr Dasent’s Burnt Njal*, ii. 397.

		GOLD COIN. ¹	
NEW COIN (Crowns).		OLD ICEL.	ENGLISH EQUIVALENT.
20 Króna peningur (20 crown-piece) }	=	\$10 0 0	£1 2 3
10 „	=	5 0 0	0 11 1¼

In travelling through the island it is advisable to carry a few dollars (specie), many half-dollars, and an abundance of marks and half-marks, with smaller pieces useful to pay minor charges. And it is useless to burden one's self with a huge bag on board ship: silver can generally be bought at Reykjavik, with a loss of some five per cent. The Danish bank-notes with Icelandic words on the back are to be avoided, as the peasants distrust an article which a wetting may reduce to a rag. In Denmark there are \$5 notes (grey paper, with blue border); \$10 (yellow paper, with brown border); \$20 (light-green); \$50 (brown paper, with straight lines in the ground); and \$100 (light-brown paper, with wavy lines). For Iceland there are no bank-notes, but when Paraguay manages to raise a loan, she need not despair of civilising her currency.

In July 1810, according to Mackenzie, the war had made the English sovereign worth 15 paper rixdollars on 'Change; and in 1812 it further rose to \$25 paper. The rixdollar at par was then worth four shillings English; as has been seen, like all the smaller coins, it has fallen to a little more than half. In 1872 the metallic value of the English sovereign in Denmark was = \$8, 5m. Osk.; but at Copenhagen it was readily exchanged for \$9 to \$9, 0m. 4sk. The pound sterling in English silver was worth only \$8, 1m. 11sk. At Reykjavik the merchants will not hesitate to offer \$8, 4m. Osk., and some will even attempt \$8, 2m. Osk. The author was once assured by one of the principal tradesmen that the Exchange at Copenhagen was \$8, 5m. Osk.; but on consulting the newspaper it was found that this was the price of bills. Thus money-changing becomes a profitable business, realising from five to ten per cent., and strangers will call upon the traveller with the object of "turning" a quasi-honest penny. Yet the simplest way is to take from England sovereigns and ten-pound notes. The foreigner can hardly expect to have

¹ In 1872 it was not a legal tender.

a cheque honoured after what has lately happened. The last blow to the English traveller's credit was dealt in October 1871, when two yachtsmen "did a little bill" with Hr Thomsen, converted their dollars into sovereigns, and went their way. The names of the delinquents are well known, but that is no reason for quoting them.

Weights and measures in Iceland are simply Danish:

8 Kvinta	= 1 Lod ¹ (half-ounce avoird.).
32 Lods	= 1 Pund (= 1 lb. 1 oz.*8¼ grs.).
16 Punds	= 1 Lispund ² (roughly our stone).

Sometimes the Norwegian weights are used, viz.:

2 Lods	= 1 Unze.
8 Unzes	= 1 Mark.
2 Marks	= 1 Skaalpund (10 per cent. more than the English pound avoird.).
12 Skaalpunds	= 1 Bismerpund.
3 Bismerpunds	= 1 Vog (36 lbs.).
16 Skaalpunds	= 1 Lispund.
100 Skaalpunds	= 1 Centner (the hundredweight of Germany, Austria, etc.).
20 Lispunds	= 1 Skippund (320 lbs.).

Of the length measures:

12 Danish inches	= 1 Foot (= Eng. meas. 12·356 in. or about 67 : 69 ft.).
2 Feet	= 1 Ell (Alen).
24,000 Feet	= { 1 Mile ³ (or 4 = 1° = 4¼ English statute miles in round numbers).

The Norsk measures are the same, but the foot is = 1·029 English, and the mile is of 36,960 feet (= 13,320 English yards = 7¼ English statute miles). The only Icelandic measure of length is the Thingmanna-leið, or journey of the Thingman, about twenty English statute miles.

The Danish Pot is = 0·300 gallons; the Kanne is about three quarts, and the barrel of oil contains between twenty-five and twenty-six English gallons.

¹ The German Loth and the corrupted Italian Lotto.

² Uno Von Troil (1770) makes the Lispund = 20 lbs. English, and adds the Vaett = 5 Lispunds, and the Kapal 12 to 15 Lispunds. Both Lispund and Bismar are now falling out of use in Iceland, where only the Danish pound is preserved. She should follow the example of Austria, and introduce the metrical system.

³ The Danish mile is the long league; 15 being = 1° of latitude.

§ 3. COMMUNICATION AND COMMERCE.

Export trade began in Iceland from the date of its official colonisation. Long before the Norman Conquest, the Norwegian kings and jarls trafficked with the island. Snorri Sturluson mentions that King Ólaf Haraldsson (Helgi, or the Holy) made much profit by his transactions with Hallur Thorarinsson of Haukdal; and an edict of King Magnús Erlingsson (A.D. 1174) alludes to the annual cargoes of flour and other merchandise sent by the Archbishop of Nidarós. Already in the thirteenth century we find Iceland in commercial relations with England, and a little later with Germany. This "free trade," which was on a considerable scale, presently fell before protection, and it did not recover itself till about the middle of the present century.

In a historical sketch of the island trade, published in 1772, an Icelandic author makes the following deductions:

- I. The native trade was most advantageous to the island.
- II. The Norwegian was honest.
- III. The British was matchless; of every foreign trade it was the most complete and the most advantageous to the island.
- IV. The German trade was unjust; it was, however, more tolerable than the
- V. Danish trade, which took its place.

The union of Calmar (A.D. 1397) made it a royal monopoly, carried on only in vessels belonging to, or licensed by, the Crown. This system lasted till A.D. 1776, and, practically closing the country to all but a few privileged Danes, it was injurious as unjust. The island was thus threatened with the fate of Greenland, whose utter desolation probably resulted from want of home-supplies rather than from Eskimo attacks. English merchants were the principal interlopers, receiving fish in barter for meal and clothes: and in A.D. 1413 one of the first acts of Henry V. was to send five ships to Iceland with letters proposing that the harbours be opened to British hulls.

In A.D. 1602, and again in 1609, Christian IV. prohibited intercourse with the Hanse Towns, the powerful confederacy which had taken the commerce from the hands of the Norwegians and Danes; and in 1620 he bestowed it upon the guilds of Copenhagen, Malmoe, and other ports. They established the

first Iceland company, which lasted from A.D. 1620 to 1662. The concession was granted on condition of its paying a small sum for the use of each haven, \$2 to the governor for every ship that broke bulk, and contributing to the royal magazines in the Vestmannaeyjar. But when the great piratical irruptions in A.D. 1627 to 1630 proved them unable to provide for, and to protect, the island, as they had undertaken to do, the resentment of the Crown caused the shares of \$1000 each to sink to half-price and eventually they fell to nothing.

After A.D. 1662 the trade of each haven was sold to the highest bidder once in every six years. In A.D. 1734 arose the second Iceland company, which paid an annual sum of \$6000 to the Crown, and sent twenty-four to thirty ships, frequenting twenty-two havens. This monopoly again was a great grievance; it was injured by smugglers and interlopers, and, by its working, the island fell to its lowest condition. In A.D. 1776 arose the third Iceland company, nominally headed by the Crown, which directed a fund of \$4,000,000, provided by the country. At the end of ten years, when the ships and stock were sold, the loss proved to be \$600,000; the residue was placed under commissioners, and the latter had the power of lending money to those who embarked in the trade at the rate of 4 per cent.; 10 per cent. being then the legal limit. In A.D. 1787 the commerce, averaging \$45,000 per annum, was exempted from all imposts for a period of twenty years, afterwards prolonged for five (A.D. 1812). As has been said, during the Danish war with Great Britain, a humane order in Council (1810) saved the island from absolute starvation. At length, after 250 years of a grinding monopoly, not, however, confined to Denmark, Iceland was finally reopened to free trade by the law which came into action in April 1854. At present there are no restrictions beyond taking out a licence or maritime passport at a cost of two shillings and threepence per ton of the ship's burden. There are, or rather till 1872 there were, no duties on merchandise outwards or inwards, and foreigners now enjoy the same

^{Vat} of trade, residence, and holding property as the natives. ^{Bismarck} April 1854 the imports rose within ten years to a ^{preserve} system. ³ The D. and a half of rixdollars. Yet something remains to be

done in facilitating trade, and especially in the matter of communication, seven mails a year being now utterly inadequate to local requirements.

Sea-passes are usually taken out by foreign ships from Copenhagen, after submitting to medical examination if not provided with clean bill of health, and paying all the legal shipping dues before bulk can be broken, otherwise they must be bought at one of the six following places:¹

1. Reykjavik, in the south-west.
2. Vestmannaeyjar, south.
3. Stykkishólm, west.
4. Ísafjörð, north-west.
5. Eyjafjörð (Akureyri), north.
6. Eskifjörð, east.

Thus the "Queen" steamer, sent in 1872 for ponies to Berufjörð, could not land cargo without going to Eskifjörð, and returning to her destination—a useless or rather an injurious restriction. She had to pay the *Sýslumaðr* \$1 per ton register, for transmission to the Danish treasury. This compensation for admitting goods duty-free, is a severe tax upon a small charter, and it would certainly be better and fairer to the merchant if the equivalent were levied upon the freight not upon the bottom. Where trade is so poor, every form of nursing should be attended to, and the minimum of protection is here the maximum of benefit.

The whole system of Iceland trade, like that of Shetland and the Færoes, is the "Trust" of the West African oil rivers, so troublesome to consuls and cruisers. The storekeeper must advance goods to the farmer, and the latter refunds him when he can, especially in June and July, September and October, when wool is pulled and wethers are killed. A few of the farmers have money at the merchants, who do not, however, pay interest; many are in debt, and the two classes hardly balance each other. Prices are generally high, but the prohibition category is unknown.

Formerly it was the practice to hold fairs or markets at the

¹ Formerly there were only four—viz., Nos. 1, 3, 5, and 6—established by law of April 15, 1854, regulating the trade and navigation with Iceland.

chief comptoirs upon the coast;¹ these "Markaðr" lasted for a week or ten days in early July, a period known as Höndlunartíð (Dan. Handelstid). The peasants came, often after a week or more of riding, with their goods carried in crates and panniers by pack-horses; pitched their tents, and began the year's business, which was enlivened by not a little gross debauchery. The canniest of their canny calling, each party sent forward some noted "knowing hand" to find out which merchant gave the largest price, and all went to him *en masse*. Consequently the traders were obliged to defend themselves by a counter-union, all conforming to a certain tariff; and now, if one store pay a skilling less than any comptoir within reach, the purchaser will claim to be refunded.

The fair system is becoming obsolete; many merchants have opened new trading stations, and even the most secluded bays are visited by market-ships. These "Spekulants," however, are not allowed to visit the out-havens where there is no comptoir—another scrap of protection to the storekeeper which calls for abolition. They are limited, reasonably enough, to four or five weeks of yearly trade at each place, but they may divide the time at several bays. Moreover, they must sell and buy only from the ships, and they cannot set up shops on shore.

¹ The following Danised names of the thirty-one privileged factories and trading places are given by Mr Vice-Consul Crowe (Report, 1865-66):

SOUTH QUADRANT.

- | | |
|-------------------------|-----------------------|
| 1. Reykjavik (capital). | 5. Vestmanns Islands. |
| 2. Havnefjord. | 6. Papö. |
| 3. Keflavik. | 7. Landhussund. |
| 4. Örebrokke. | |

NORTH QUADRANT.

- | | |
|-------------------------------|-----------------|
| 8. Oefjord (called "a town"). | 12. Husavik. |
| 9. Skagerstrand. | 13. Ramforhavn. |
| 10. Hofsóa. | 14. Thorshavn. |
| 11. Seydafjord. | 15. Sandarok. |

EAST QUADRANT.

- | | |
|------------------|----------------|
| 16. Vapnafjord. | 18. Eskifjord. |
| 17. Seydiafjord. | 19. Berufjord. |

WEST QUADRANT.

- | | |
|---------------------------------|----------------------|
| 20. Isafjord (called "a town"). | 26. Patriksfjord. |
| 21. Stykkisholm. | 27. Flatey (island). |
| 22. Olafsvik. | 28. Reykjafjord. |
| 23. Bådenstad. | 29. Bordöre. |
| 24. Bildal. | 30. Stratmfjord. |
| 25. Dyrefjord. | 31. Skeljavik. |

Regular postal communication is perhaps the first want of the island; there is hardly any for the three and a half months between November 29 and February 15. A steamer would take very few passengers at such seasons, but a stout and ably handled schooner-rigged craft of 120 tons (minimum), with a crew of seven men, should find no difficulty in carrying the mails. Yet the history of such attempts is not encouraging. The first postal packet, the "Sölöwen," went down, "man and mouse," off Snæfellsnes, a dead horse cast ashore giving notice of the calamity: about the same time another ship was lost with all on board. The first steamer was the "old Arcturus," Clyde-built, 280 tons register, and eighty horse-power; the captain (Andresen) and crew were Danes, and the engineers were Scotch. Messrs Henderson of Glasgow, who hazarded the speculation, obtained from Denmark a subvention of \$6000 per annum for six years, besides an advance of \$30,000 purchase money, at 4 per cent. interest for outlay. This "cockle-shell" made four, then six, annual voyages, the first in March, the last in October; and she touched at Grangemouth when outward and homeward bound. Her charges were cheap—£2, 2s. for eight days, board, wine, and whiskey included. She is now, they say, trading for the United Steam Company between Copenhagen and the Baltic.

But private companies, though receiving a grant of \$15,000 per annum, did not thrive. The "Arcturus" was succeeded by the Danish "Póst-skip" "Diana," which was put upon the line in 1870. She is a converted man-of-war, formerly stationed at the island, with flush decks for guns. A "slow coach" and a fast roller, she formerly made five trips a year, now increased to seven; and the Appendix (No. I.) will give all necessary information about her movements. She offers the advantage of touching at the Færoes, and at Berufjörð, but it has been proposed to give up the latter station. On the other hand, she is exceedingly inexact, often lagging behind her time at Granton, and other places. During the season she is painfully crowded; "a state-room may be had against payment for all the berths therein;" but unless the kind and hospitable Mr Berry,¹ Consul-

¹ This gentleman is most obliging in giving all information about the steamer. No passport is required for Iceland.

General for Denmark at Leith, or the civil Vice-Consul, Hr Jacobsen, telegraph to Copenhagen, none will be vacant. The food is greasy, and soaked in fat. As long as Captain Haalme and Lieutenant Loitved commanded the "Diana," there was little official interference with passengers. Afterwards she fell into the hands of a martinet, and matters changed for the worse. She seems cheap, but she is really dear, as these figures show:

First-class cabin from Granton to Iceland,	£4 0 0
Table, without wines (at 3s. 9d. per day),	1 13 9
Wines, etc.,	1 0 0
Baggage, only 100 lbs. free; overweight (say 100 lbs.), at 9d. per 10 lbs.,	0 8 0
Fees, etc.,	0 8 0
	<hr/>
	£7 9 9

She does not pay, and no wonder, when the Reykjavik traders sail their own ships. But these gentry have also determined so to monopolise the traffic, that often the smallest parcel, even of medium size, is refused, under the pretext of there being no room. In fact, they have made the "Diana" peculiarly unpopular. "It is difficult," says a friend, "to find any reason for such conduct, but that the Copenhagen merchants who furnish the stores of Reykjavik with their poisonous liquors, which they pass off for genuine, take every means to prevent anything like competition."

In 1872, when the author visited Iceland, the export of ponies, sheep, and meat cattle had caused a rapid development of communication. Already the "Yarrow" of Granton had been run for three years by her owner Mr Slimon, who had bought and floated her after she had been wrecked off Burntisland. She at first refused, but afterwards consented, to carry mails. With as many as 450 head of horses on board, and towing a sloop with fifty more, she was terribly down in the stern; and a pooping sea would have been no joke for her solitary passenger. The "Jón Sigurðsson" was also sent in May by her owners, a private Norwegian company, and she was followed by the "Queen." Concerning these two, ample details will be found in the Journal.

§ 4. THE STORE.

The present is an age of "manufactures and diffused wealth," which calls for as many observations on trade and business as the traveller can make. Before visiting the stores, however, a few words must be bestowed upon an interesting detail.

Foreigners are apt to complain that Icelanders are uncommonly "sharp practitioners;" sleuth-hounds after money, and bull-dogs in holding it, like Yorkshiremen. It has become the fashion to say that the islanders are kind and hospitable at first, but succeed in jewing the stranger at last; and, like most of such generalisations, it contains a partial truth. Upon this subject an Englishman who knows the island well, wrote, "So far as my experience goes, I have never met with an Icelander who was a rascal; there are, however, men in Iceland, and especially at Reykjavik, who are pretty specimens of that form of animal life.

. . . I have heard some travellers regard it as a swindle that horses are dear when wanted to purchase, and cheap when sold; but they forget that in early summer there is plenty of work for beasts, and the demand raises their price by the natural law. At the approach of winter there is no work for them and scanty food, consequently the value falls."

The traveller, as a rule, will meet but little imposition, except in two notorious cases, alluded to in many a page. One is the rapacious Rev. Mr Bech, now Prófastur (archdeacon) of Thingvellir, who charged Prince Napoleon 220 francs for camping ground, and who is said to have demanded \$47 from Lord Dufferin. The other is Pétur Jónsson, the farmer at Mý-vatn, who has fleeced generations of tourists; he was made by nature to keep an inn at Palermo, or lodgings at Dover. Against these and a few other instances, may be set off many a small farmer who will declare that he has been paid too much; and often the boatman seems surprised at being paid at all. The people appear eminently honest in the country parts. About the capital this can hardly be expected: a revolver and a silver snuff-box if dropped will not be recovered.

In business the foreigner will fall into the hands of the Danish

storekeepers, who certainly have more than a "theoretical knowledge of the value of money;" and he will be fortunate if he escape unscathed. One of these gentry, attempting to extort 500 francs from the Capitaine Le Timbre for throwing a seine, without taking a fish, into an unpreserved part of his river, failed, as he deserved. The bad example has to a certain extent infected the Iceland trader. Messrs Henderson & Anderson were ruined by their agent. An English storekeeper came out in 1872, with the object of recovering certain debts from the present owner of the "Glasgow House." He had spent some years on the island, he knew Danish well, and he was accustomed to treat with the people; yet he wholly failed, and the worst part of his failure was, that no Procurator (lawyer) would undertake the foreigner's case against a brother islander.¹ But if these two were disappointed, Messrs Ritchie and Messrs Hogarth have been successful. And many of our countrymen who land in Iceland for trade should certainly not throw stones at the islanders. One of these clerks, a decidedly "sharp" young man, not to use the comparative form of the adjective, attempted to make himself richer and the author poorer by £25, on the pretext that he had bought ponies, for which the hirer should be responsible.

The storekeepers at Reykjavik are called merchants (*kaupmaðr* = chapman), and their establishments, which lack signs and names, are the conspicuous buildings fronting the sea. Mostly, they are paid employés of Copenhagen firms, who receive fixed salaries. The following is a list, beginning from the west:

1. Hr Egill Egilsson (Icelander), of the Glasgow House, and agent of the "Jón Sigurðsson" steamer.
2. Hr Fischer, a Dane, married to an Icelandic wife, settled at

¹ Upon these remarks Mr Jón A. Hjaltalín observes, "The case referred to is as follows: The Scotchman's claim may have been good in point of Scotch law, but it was not in point of Icelandic law. That is the reason why the Procurators would not undertake it. He has therefore to blame the law, not the men. I know, as a fact, that both the Procurators of Reykjavik have conducted cases for foreigners, *e.g.*, Messrs Henderson & Anderson against Icelanders. It would have been more questionable practice, although perhaps more lawyer-like, if they had induced the plaintiff to go on with the case, although they were sure that he would lose it. Foreigners often think they are wronged if a case, which is clear according to their own laws, breaks down according to foreign laws: Icelanders have gone through that experience in Scotland."

Copenhagen, and occasionally visiting the island. He occupies the corner tenement to the right of the Bridge House; and he has large stores fronting his shop.

3. Hr Havstein (Dane), who has not long been established; his private dwelling is attached to his store at the west end of Harbour Street, but he usually lives at Copenhagen. This house charts two or three ships a year to carry its goods.

4. Hr Hannes Jónsson, an Icelander, son of the former Bishop Steingrímur Jónsson. His stock is furnished by Hr Jonsen of Copenhagen, who has also establishments at Hafnafjörð, Papós, and Seyðisfjörð.

5. Hr Robb, the son of an English merchant, who settled at and was naturalised in Iceland.¹ He speaks German, but not a word of English. It is the smallest of all the establishments, and seems to do business only in lollipops.

6. Hr P. C. Knutzen, a Dane, whose agent is Hr Sivertsen. He trades on his own account, without a company; and, being young and wealthy, he prefers Copenhagen to Reykjavik. At Hafnafjörð he has another establishment, and an agent (Hr Zimsen).

7. Hr Möller. The Club is held at his house.

8. Hr Schmidt (Danish), who hires a house at Reykjavik, and passes the winter at Copenhagen. He is Consul for Holland.

9. Hr Th. A. Thomsen, a Dane of Flensburg, born in Iceland. He passes the winter at Copenhagen; and, besides being one of the principal traders, he is well-known for his civility and kindness to strangers.

10. Hr Edward Siemsen, at the east end of the town. He is agent for his brother and their nephew, and he also acts Consul for Denmark.

Including M. Randrup, Consul de France, the Consular Corps, none of them belonging to *la carrière*, consists of three, England, of course, being unrepresented, though she does the largest business in coal and salt. Thus the tricolor is the only foreign flag seen in the island, the other two staves bear Danish colours. As has been shown, most of the traders pass only the summer in

¹ Naturalisation is wisely made easy in Iceland. The foreigner swears allegiance, pays \$2, and straightway becomes a citizen.

Iceland, and they solace themselves with frequent rides and picnics at the Laxá River.

Kerguelen has left us an excellent description of the Iceland trade in A.D. 1767. It was managed by a Danish company (No. 2, before alluded to), which had bought an exclusive privilege from the king, and which kept factors and warehouses at the several stations. The only money was fish and butter,¹ whilst one ell of pig-tail (tobacco) = one fish. The fisheries were very extensive, and would require four frigates thoroughly to protect them. Exports were included under salt meat, beef, and mutton; tallow; butter, close packed; wool in the grease; skins of sheep, foxes, and seals; feathers, especially eider down; oil of whales, sharks, and seals; fine and coarse jackets of Wadmal, woollen stockings, and mitts; stock-fish and sulphur. The imports were fishing-tackle, horse-shoes, carpenters' woods, coffee and sugar, tobacco and snuff, beer, brandy, and wine, dry goods (calicoes, etc.), flour (wheat and rye), bread and biscuit.

The imports of the present day, to mention only those of chief importance, are timber, salt, coals, grain, coffee, spices, tobacco, and liquor. The timber consists of pine and fir, mostly the latter; the forms are beams for roofing and framing, twenty-two to twenty-four feet long, one-inch boards for side-lining of houses, three-inch planks, and finer woods for the joiner. Salt comes chiefly from Liverpool, which is ousting the Spanish trade, and the average price may be \$2 per barrel = 176 pots = 44 gallons. The people declare that they cannot afford the expense of salt-pans, and that the sun is hardly hot enough for evaporation: this was not the case a few years ago, but Iceland, like Africa, finds it cheaper to import the condiment. English coals are carried in British bottoms, either direct or viâ Copenhagen; from the latter only small quantities come; birch wood, sawn and split for fuel, is introduced for private use, not for the general market; and there is no charcoal at Reykjavik, although birch "braise" is found inland. The cereals, whose consumption ranges from twenty-four to thirty bushels a head, are wheat and rye, in grain, flour, and biscuit; baking-ovens are found only at

¹ In the secluded parts of the island fish and butter still form a currency of exceedingly variable value.

the capital. The rice is more often cheap "Rangoon," than fine 'Carolina;" the people, who are fond of rice-milk, do not appear to know the difference, and the import quintupled between 1864-70. The spices are chiefly cinnamon, generally mixed with black pepper; pepper,¹ cloves, and nutmegs. Coffee,² whose consumption is 6·7 pounds per head, is chiefly the Brazilian growth; tea is very rare, and a little chocolate is brought from Copenhagen. In hard times, for instance after 1855, the consumption of these luxuries notably falls off. The tobaccos are usually the common Danish article; foreign growths are represented by twist, for chewing as well as smoking; by shag, bird's-eye, and some specimens of the thousand mixtures which have become so popular of late. As may be expected, the cigars are dear and bad; the best, or at least the most expensive, are the Hamburg "Havannahs," which are pretentiously wrapped up in a plaintain-leaf, veritable "cabbage." Perhaps the favourite form is snuff (= about \$3 per pound), which is loved by males of all classes and ages. There are few men who "take nothing between their fingers;" the consumption of this Tupi article is about two pounds per head of males.³

The list of wet goods in a general store is extensive, including port and sherry, claret and champagne, rum and cognac, with liqueurs like cherry-brandy. These are mostly dear and bad; the beer imported for tavern use, and the Brennivín, Kornschnapps, or rye-spirits, are too cheap to be adulterated, except for the peasantry. Not a few country merchants can sell per annum of this liquor twenty barrels, each containing thirty gallons. The Althing imposed an import tax, to come into force on July 1, 1872, of \$0, 0m. 8sk. (about 2½d.) per pot or quart, upon every bottle of wine and spirits, beer only being excepted.⁴

¹ No Cayenne is procurable, and those who ask for it will probably be served with curry powder in bottles, that do not suffice for a single dish, but cost one shilling.

² Coffee did not come into general use before the end of the eighteenth century; tea and tobacco are mentioned in the satirical poem, "Thagnarmál," 1728, by Eggert Ólafsson, who died in 1768 (Cleasby).

³ The Consular Report says, "1 lb. per annum for every man, woman, and child."

⁴ The Report has it that the duty of eight skillings per pot or quart has been laid upon ale, wine, and spirituous liquors, when imported in casks or hogsheads,

But the law unhappily said "drinkable spirits," and the merchants were able to exempt pure and methylated alcohols from the impost. Consequently "brandies" were made at Reykjavik and at other trading stations, greatly to the detriment of public health as well as of morality, and despite the exertions of sensible men like Dr Hjaltalín, the "Land-physicus." The duty upon twenty barrels would be \$200; it is paid into the Treasury under the charge of the Landfógeti, superintended by the Stifamtmaðr. The sooner an "Adulterations Act" is passed the better, but in Iceland as elsewhere *magna est pecunia et prevalebit*. The island is not cursed with a Manchester school and its moral mildew, but commercial interests are amply sufficient for more than self-protection.

It may be useful to compare the prices in 1810 by Stephensen (History of Iceland), with those of 1872, on the western and eastern coasts:

	In 1810.	In 1872.	On East Coast.
1 pair trade mitts,	\$0 0 4—6	\$0 2 0	\$0 0 14—20
1 pair stockings,	\$0 0 12—18	\$0 4 0	\$0 2 0
1 pair fine socks,	\$0 0 64 to \$1	\$1 0 0	} none made for sale.
1 common Wadmal jacket,	\$0 0 40—60	\$3 to \$4	
1 fine Wadmal jacket,	\$2 to \$3	\$6 0 0	
1 lb. (Dan.) wool,	\$0 0 12—20	\$0 3 4	\$0 2 to \$0 4
1 lb. eider down,	\$2 3 0 to \$3	\$7 3 0	\$7 0 0
1 lb. feathers,	\$0 0 17—20	\$0 2 0	\$0 2 0
1 lb. tallow,	\$0 0 16—22	\$0 1 4	\$0. 1 0
1 lb. butter, ¹	\$0 0 10—28	\$0 2 0	\$0 1 0
1 Skippund (320 lbs.) "flat fish," ²	\$12 to \$20	\$26 0 0	\$20 0 0
1 Skippund klip-fish, ³	\$15 to \$30	\$30 to \$40	none.

and a duty of equal amount per one and a half pint, when imported in bottles, jars, or kegs.

¹ Iceland home-made butter is poor, white, full of hairs, and made in a way peculiarly unclean. It is mostly of ewes' milk, that of the cow not sufficing. Travellers of course prefer the imported, but it is not always to be had at the shops. The favourite native form is "sour butter," which, like the Ghi of Hindostan, lasts twenty years, though if salted it becomes rancid: it takes the place of salt and seasoning; it is considered to assist digestion, and it "diffuses an agreeable warmth over the stomach." The climate demands such carbon-producing food, and "Fat have I never refused!" is a saying with the islanders.

² Flat fish, not being flat, is a misnomer for the sun-dried preparation which is unknown abroad, and unfit for European markets.

³ This salt fish on the eastern coast is chiefly for home use, the catch being too late for curing, and dry weather being mostly wanting at that season.

	In 1810.	In 1872.	On East Coast.
Sharks' liver oil, . . .	\$12 to \$20	\$30 0 0	\$25 0 0
White or Arctic fox (<i>Lagopus</i>),	\$3 0 0	\$1 4 6	none on East Coast.
Blue (<i>i.e.</i> , deep iron grey) fox, . . . . .				$3 0 0	$8 0 0
Sheep (<i>C. fuliginosus</i>), . . .	\$5 0 0	\$8 0 0	
Deer skin, ¹	\$5 0 0	\$5 3 0	
Ran-quilla,	\$2 to \$3	\$8 0 0	very rare.
Seal,	\$6 to \$40 according to demand,		£3 to £10
Walrus,	\$16 to \$24	\$50 to \$80	and upwards.
Wool,	\$2 to \$5	\$9 0 0	\$9 0 0
Wool and lamb,	\$2 to \$2½	\$12 0 0	\$9 0 0
Wool,	\$1 2 0	\$3 0 0	not for sale.

Statistics of imports for 1865, occupying nearly a page and will be found in the Consular Report of that year; the importations represented £21,468. The kind, weight, value of the primary items are thus tabled in 1870-71: amount applies to the whole island, but only the principal items are mentioned:

	1864.	1865.	1866.	1867.	1868.	1869.	Average Yearly Value in £.
Wheat flour, } lbs,	35,620	41,596	37,968	29,426	27,973	28,905	40,044
Do,	17,490	19,960	16,708	12,992	10,463	10,455	24,463
Do,	4,524	4,177	4,481	3,158	3,173	2,775	4,953
Wheat bread, lbs.,	317,216	339,511	252,511	244,754	182,783	196,068	3,494
Do, lbs.	18,033	26,869	21,389	18,844	13,754	20,714	210
Do, quarts,	567,675	608,864	529,426	479,285	385,273	351,752	12,402
Do, lbs.,	393,164	462,227	483,852	403,840	403,707	389,544	12,011
Do, lbs.,	87,864	120,602	108,753	102,089	102,762	133,909	9,488
Do, andy, lbs.,	347,745	429,467	385,942	410,558	335,501	344,842	9,487
Do, gar, lbs.,	101,918	152,840	135,350	118,229	113,960	111,229	3,087
Do, sugar, lbs.,	27,751	47,020	41,602	36,456	34,268	32,043	786
Do, lbs.,	16,199	19,257	14,289	12,100	9,972	12,807	208
Do, lbs.,	80,946	127,304	251,201	230,338	236,965	388,938	2,535
Do, lbs.,	72,422	69,172	83,625	69,402	45,651	61,492	1,691
Do, tobacco, lbs.,	5,449	11,619	8,448	3,665	4,496	2,234	176
Do, tobacco, lbs.,	35,011	39,908	37,081	34,727	30,617	34,527	2,972
Do, lbs.,	9,953	14,854	14,865	10,730	10,531	11,459	254
Do, pieces,	274,000	236,100	262,800	191,900	170,000	301,000	266

peculiarity of this table is that while the consumption of

two pelts were sent in 1872. The merchant weighs the carcase when cold, melts the tallow, and pays a price according to the market, from fourteen skillings to a mark. The man has a strange idea that sheep falling into snow crevasses, and found a few afterwards, are naturally salted—a curious appendage to the “freezing” theory.

colonial goods remains at the usual average, and while rice has nearly quintupled, there has been a decrease in the import of rye, barley, pease, and wheaten bread, a circumstance not easy to account for, with a growing population in an island which produces no cereals.

The collective value of these imports is somewhat over \$1,100,000 = £122,222, which is but \$100,000 less than the total value of the exports of 1869 (\$1,200,000 = £133,333); and, as only the most important items have been mentioned,¹ we may conclude that the two totals almost balance each other. The consumption of brandy, coffee, sugar, and tobacco is alone equal to about \$418,000, or one-third of the whole value of the exports.

In 1869, the number of foreign vessels that visited the trading stations was

From Denmark direct,	99 vessels,	with 9,358 tons.
„ other countries,	50 „	4,555 „
„ other island stations,	137 „	13,913 „

Of the 149 direct foreign arrivals

Cleared in to Reykjavik,	31·1 per cent.
„ Akureyri,	9·3 „
„ Seyðisfjörð,	9·3 „
„ Ísafjörð,	8·2 „
„ Berufjörð,	6·4 „
„ Hafnarfjörð,	51·0 „

We will now enter the establishment, and see the stock-in-trade of a general “merchant.” The usual dwarf entrance-hall, after the outer door is passed, opens upon two rooms to the right and left: one is the public shop, filled at the “fair season” with

¹ The other imports not accounted for are alum, drugs, ashes, ink, brushmakers' work, cocoa, chocolate, ale in bottle and in cask (the latter, 11,776 lbs. in 1866), wine in bottle and cask (the latter, 23,137 lbs.), vinegar, essences, catechu and galls, indigo, dyestuffs and varnish, playing-cards, “galanterie wares,” glass ware, resin and gums, caps, stone china, pork and hams (2,480 lbs.), meat (2,279 lbs.), cork, buckwheat meal (880 lbs.), oatmeal (319 lbs.), spices (1,016 lbs.), coals (157 tons), cotton goods (62,484 lbs.), silk (11 lbs.), woollen goods (686 lbs.), block metal (786 lbs.), bar and hoop iron (63,486 lbs.), nails (23,441 lbs.), iron chain (404 lbs.), iron wares (33,770 lbs.), zinc in plates, hardware sundries (6,981 lbs.), cheese (1,736 lbs.), paper (6,210 lbs.), soap (12,225 lbs.), sago, etc. (811 lbs.), saltpetre (297 lbs.), prepared hides, and skins (4,508 lbs.), acids (309 lbs.), tea (918 lbs.), ropemakers' work (22,770 lbs.), wood goods (14,294 cubic feet), worked woods (42,993 lbs.), vitriol (4,519 lbs.), and bar steel (1,441 lbs.).

jostling boors and drunken loafers ; the other is the private store, mostly provided with railed pen for the benefit of the clerk and account-keeper. Besides the mainstays of commerce before mentioned, the rooms will contain the following articles: Dry goods, broad cloths and long cloths, woollen comforters, threads, and a few silks and satins. Hardwares of every description ; iron for the blacksmith's use ; hoop-iron and bar-iron (no pig), the metal being preferably Swedish, for the best of reasons ; a little steel and brass wire, but neither copper nor zinc ; farriers' and carpenters' tools ; cooking utensils ; spades and scythes ; sewing machines ; and fish-hooks, the smaller sort for long lines, the cod-hooks large and of tinned iron. The arms and ammunition, especially old military muskets and muzzle-loaders, are fit only for the Gold Coast : Copenhagen weapons are cheap and good, £2, 5s. being the average price of a breech-loading single-barrelled rifle. Pistols are not seen, and there is a tradition of the barrels being cut for alpenstock rings. Besides cereals, the stores supply sugars, brown, candy, and white, refined at Copenhagen ; hams (rare, and no potted meats, so much wanted by travellers) ; sausages and sardines ; butter (foreign sometimes) ; figs, raisins, prunes, and olive oil. The Quincaillerie consists of pots and pans, boxes, funnels, kettles and watering-pots, lamps and lanterns. The walls are hung with leather for saddles, thongs, straps, and raw hides for shoes. There is an abundance of cheap crockery and glass ware. Paraffin and petroleum have lately come into general fashion ; stearine candles are kept mostly for private use, and the peasants make their own farthing dips.

A narrow back passage, often connecting the public and the private shop, will have a ladder leading to the usual cock-loft, scattered with boxes and bales. Here a few skins and birds stuffed for sale, some of them sadly damaged by rats, hang from the beams ; and the following are the chief items :

The falcon¹ (*F. islandicus*, Icel. Fálki, a foreign word, or Veitðifálki) ; a good white, stuffed specimen costs \$10. This bird, so much valued during the Middle Ages, and considered the elder

¹ Here and there an eagle skin may be bought ; and in country parts the quills of the royal bird are used as pens. The only species is the white-tailed *Haliaeetus* (*H. albicilla* or *F. leucocephalus*).

brother of the gerfalcon (*F. gyrfalco*) or peregrine, was protected by kings and bishops, who claimed the right of exporting it. A royal mews was established at Reykjavik. In 1770, the falconers paid \$7 for the grey bird, \$10 for the dark-grey, and \$15 for the white, which was considered the most beautiful and docile. Many were sent to England as late as the seventeenth century: in 1871, a few birds were bought for the Hindostan market. This falcon is very destructive to ducks, and ranges far, making upwards of 1300 miles per diem.

Whoopers, hoopers, or wild swans (*Cygnus ferus*, Icel. Álpt or Svanr in poetry, the Fær. Svener), are now, from the rarity of the skins, sold at fancy prices.

The Iceland golden-eye (*Clangula islandica*, Icel. Húsönd) fetches, according to quality, \$0, 5m. to \$1, 2m.

The gulls (*L. glaucus*, Icel. Hvít-máfur or Hvít-fugl) and the great black-backed *L. marinus* (Svartbakur) are cheap, and good specimens may be bought for \$0, 2m.

The great northern diver (*Colymbus arcticus seu glacialis*, Icel. Himbrimi or Brúsi), if good, costs \$1, 4m.; usually it is sold when the coat is changing from winter to summer wear, and is not worth buying.

The red-throated diver (*Colymbus ruficollinus seu septentrionalis*, Icel. Lómr or Therrikráka) is worth \$1, 2m. when in good condition, with red around the throat and about the breast.

The other skins are the whimbrel or curlew-knot (*Numenius phaeopus*, Fær. Spogvi, Icel. Nefvoginn-Spói); the pretty red-headed pochard (*Fuligula ferina*), extending from the Himalayas to North America, from Italy to Greenland; the beautifully painted harlequin, or stone duck (*Histrionicus torquatus seu Anas histrionica*, Icel. Straum-önd or stream-duck); the white-breasted and crooked-bill'd goosander (*Mergus castor*, Icel. Stóratoppönd or Gulönd), so different of robe in male and female; the red-breasted mergander (*Mergus serrator*, Icel. Lilla Toppönd), whose brick-hued bill, ending in a white horny nail, has various serrations, according to sex; the shag, scarf, or cormorant (*Phalacrocorax carbo*, *Carbo cormoranus* or *Pelicanus carbo*, Icel. Skarfur, Toppskarfur, and Dílaskarfur), never taught in Europe to fish; the gannet (*Sula bassana* or *Pelicanus bassanus*, Icel.

Súla or Hafsúla); the various skuas or Arctic gulls (*Stercorarius* Icel. Kjói); the Iceland gull (*L. leucopterus*, Icel. Hvít-máfur), white, with ash-blue back; the guillemot (*Uria troile*, Icel. Svartlag, Langnefia, or Langvia), whose flesh is eaten, and whose feathers sell for twenty-eight skillings per lb.; the black guillemot (*Uria grylle*, Icel. Tejsti); the grey-lag goose (*Anser ferus*); the scaup-duck (*Fuligula marila*); the black scoter (*Oedemia nigra*); the long-tail duck (*Harelda glacialis*); the pin-tail duck (*A. acuta*); the red-necked phalarope (Icel. Óðin's-hani, *Phalaropus hyperboreus seu tringa borea*); the gadwall (*A. strepera*); the wigeon (*A. Penelope*); the mallard (*A. boschas*); the teal (*A. crecca*).

SECTION IX.

CATALOGUE-RAISONNÉ OF MODERN TRAVELS IN ICELAND—PREPARATIONS FOR TRAVEL

§ 1. CATALOGUE.

And first a few words concerning Icelandic literature.

Iceland has been loudly proclaimed to be the "home of the Eddas,"¹ which is emphatically not the case. The Elder or poetical Edda is distinctly Continental; it abounds in un-insular ideas and similes: the sun-stag, the high-antler'd deer, the

¹ Mr Jón A. Hjaltalín observes: "If by 'home' is meant the place where the songs were first made, this is undoubtedly correct, according to accepted theories; but then Norway would not then be their home any more than Iceland. On the other hand, it is indisputable that their last and only home was in Iceland, when they were nowhere else to be found. The allusions in the songs give no clue to their birthplace. You may find an Icelander of the present day singing of lions and elephants. And if they can do so now, why not in former times also?" The author would remark that the Elder Edda has evidently been preserved by memory from earlier ages, and that its origin must have been in Continental Scandinavia. It is rather the spirit of the poetry than the scattered allusions which suggests that much of it was not addressed to islanders. A comparison of the *Völuspá* with any Icelandic composition will explain what is here meant; and Mr Benjamin Thorpe seems to have been struck by the same idea.

wolf,¹ the strong-venom'd snake, the mew-field's bison or path of ship over the sea, the lily and the pine forest, are poetical imagery, wholly unfamiliar to the untravelled Iclander.

The authentic historical literature of Scandinavia opens about the middle of the ninth century; that of Iceland with its Norwegian discovery, when the copiously and irregularly inflected tongue, the "delight of philologists and the traveller's despair," was apparently in its highest form. The learned Bishop of Skálholt (Hist. Eccl. Isl.) assigns four distinct ages to the classical productions of his native island:

I. Infancy: from the first colonisation (A.D. 874), when every man appears to have been a Skáld² or bard, ending with the introduction of Christianity in A.D. 1000. The Sturlunga (i. 107) asserts that all the Sagas of that date were committed to writing before the death of Bishop Brandr (A.D. 1201).

II. Youth: when colleges and schools were introduced, ending with A.D. 1110.

III. Manhood and zenith of splendour: from that time till A.D. 1350.

IV. Decline and fall between the mid-fourteenth century and the Reformation.

Thus the Augustan age endured for the unusually long period of some two and a half centuries.

The island, though scantily peopled, enjoyed immense advantages for study. It had taken the first great step in civilisation, SLAVERY, and while carl and thrall tilled the field, Jarl, clerk, and franklin found ample leisure for literature. The long rigorous winters, when neither farming, fishing, fighting, nor sea-

¹ We find an Ulf's-vað in Iceland, but probably the name was given in memory of the old home, or as Ulfur was a proper name like Vuk in Slav, the first settler may have so christened it.

² Skáldr (Germ. Schalte) means a pole; and inasmuch as the Scald-pole (Skáld-stöng or Nif-stöng) was scored with charms and imprecations—as Martin Capella (fifth century) writes:

"Barbara fraxineis sculpatur runa tabellis;"—

so "pole" came to signify a libel. Hence Skáld may be akin to the Germ. Schelten, and the familiar English "Scold." Afterwards it took the meaning of poetry in a good sense, and Skáldskapr (Skaldship) was applied to the form of verse, metre, flow, and diction (Cleasby). It is hardly necessary to observe that the word is of disputed origin, the five general derivations being Skalla (depilare), Skiael (wisdom = our "skill"), Skjall (narratic), Skal (sources), and Gala (to sing). "Hirðskáld" corresponds with our poet-laureate.

faring was possible, proved highly favourable for reading, writing, and reciting; and hence the phenomenon that the history of mediæval Iceland is more complete than that of any European country. The extensive piratical wanderings of the race gave, moreover, a cosmopolitan complexion to its compositions. Some modern writers wonder to see such display of literary activity, especially during the last fifty or sixty years of the Commonwealth, when society was convulsed by sanguinary feuds, and when every man slept weaponed. As we often find in history, it was this very turbulence which gave the spur; after the union with Norway, the island became peaceful, and her poets and historians found their occupation going or gone. The noble Icelandic prose, which in terse, picturesque, and crystal-clear expression, vied with Latin, and which equalled Greek in distinctness and combination of words, was no longer written; and between the fifteenth and the mid-sixteenth centuries men of letters contented themselves with transcribing and annotating their classics.

The poetry of the Augustan age was, at first, simple and sufficient as the prose—it reminds us of Firdausi's *Shah-nameh*. But presently, as is ever the case with a decaying literature, came the *Skáld*, whose highest merit was that of calling nothing by the right name, of saying common things in an uncommon or rather in an unintelligible way. Space forbids even an outline of his system, the vast variety of quaint conceits, the abuse of metaphor, of "Kenningar" (circumlocution), of simile, and of allegory, and the prodigious complication of metres, which formed his stock-in-trade; suffice it to say that he used 150 synonyms for an island, fifty for a wave,¹ and a greater number for gold. Thus Rask remarks that with a half-a-hundred terms for a ship there is no word for "benevolence." The *Skáld's* vocabulary added to the copiousness of Arabic, the polysynthesis of Sanskrit; his inversions and transpositions of speech are so complicated, that modern commentators after quoting the lines, mostly number the words or subjoin the construction.

It is interesting to observe the family likeness between the

¹ Von Hammer counts 5744 Arabic terms for a camel.

two distant cousins, Persian and Icelandic. Hafiz, for instance, from Alif to Ya, is one long example of Skáldic poetry; he sings the praises of wine when he means, or is understood to mean, heavenly love, and his verse, like that of Ultima Thule, requires for every line a dictionary—not of words, but of the *double entendres* which lurk under words. Grimm, when pronouncing Icelandic to be the “true source of all the Teutonic languages,” cannot but remark its Oriental turn. It is in fact after the Slav, the purest type of the Indo-European, which has been so modestly called the “Indo-Germanic” family.

The Reformation stirred up the popular mind, and the result, as usual, was a revival of literary energy. But the produce—theology with poetry religious and ethical; history, or rather continuations of the old annals; criticism, exegesis, and grammatical studies—showed decline in matter as well as in manner. The originality, the strong individuality of the old pagan, was succeeded by the mechanical industry of the copier, who had other models to work from. This modern period still continues. The love of letters, inspired by soil and climate, even now characterises the Icelander despite his poverty and isolation. During the last century abundant good work has been done in editing and publishing the classical literature, and some excursions have been made into the regions of science, mechanics, and political economy.

The list given by Uno Von Troil contains the names of 120 works; and the Reports of the Icelandic Literary Society between 1852 and 1871 show, besides its yearly transactions (*Skírnir*), the titles of fifty-one publications, some old but mostly modern. Bishop Pétursson (*Hist. Eccl.* 330) gives a list of six folio pages, containing the titles of *Libri Biblici, Catechetici, de Evangeliiis, Precum, Conciones, et alii piis usibus Libri*. It is interesting, again, to compare this hyperborean literature with that of the little Istrian peninsula. The latter, despite such drawbacks as poverty and political excitement, and the torments of plagues, droughts, famines, invasions, and intestine strife, can point to a roll numbering about 3000 names:¹ England herself is hardly richer in local literature.

¹ The total is 3060, but this would include the classics who have treated of Istria.

Amongst the subjects which Icelandic has treated, we may number proverbs, the "marrow of the language." The first collection (*Orðskviðasafn*) was made by Guðmundur Jónsson, and printed in octavo by the Literary Society (Report of 1872). The Cleasby-Vigfusson Dictionary also contains a considerable number which deserve separate publication, for the benefit of those who appreciate this highly ethnological form of literature. Even the Færoe Islands possess their *répertoire* (Description, etc., by the Rev. J. Lundt: London, Longmans, 1810), and some of them are *naïve* in the extreme. For instance, "Calumny never dies," and "Seldom are pigeons hatched from a raven's egg." Some five years ago Mr Jón A. Hjaltalín translated into English a collection of Icelandic proverbs, adding to it those of the late Dr Scheving. His plan was: (1.) to give the text; (2.) a literal translation; and (3.) a common translation, *e.g.* :

Berr er hverr á baki nema bróður eigi ;
 Bare is every on back unless brother have ;
 Bare is back where brother is not.

Thus the Advocates' Library has the largest and the most complete collection of Icelandic proverbs ever made, whilst, *mirabile dictu*, it is in MS., being unable to find a publisher.

Finally, the days are past since Sir Joseph Banks could collect the three hundred rare and valuable MSS. which were deposited in the British Museum. At present not a single article of literary worth is to be bought on the island.¹

We will now proceed to Icelandic travellers, and more especially to the English travellers of the present century.²

¹ Mr Lidderdale of the British Museum has lately catalogued its Icelandic books, and by another list of all those printed, shows what is wanted to perfect the national collection. The latter possesses some rare volumes which are not in the National Library of Copenhagen.

² The most noted of the old writers are the following: Arngrímur Jónsson published a variety of books on local subjects, *Brevis Commentarius* (1592), *Anatome Blefkeniana* (1612), *Epistola Defensoria* (1618), *Apotribe Calumnia* (1622), *Chrymogæa* (1609-1630), *Specimen Islandiæ* (1643). In 1607 appeared the "Islandia, etc." of Difmar Blefkens (Blefkenius). The author lived a year at "Haffnefiordt," and then passed on to Greenland. He greatly scandalised the islanders by making them purify their skins and strengthen their gums like the Celtiberi of Strabo and Catullus, and the coquettes of rural France. In 1608, Ionr Boty printed his "Treatise of the Course from Iceland to Greenland" (*Purchas*, iii. 520). In 1644, La Peyrère wrote an "Account of Iceland" (*Churchill*, ii. 432), from which an extract has been made. In 1746, John Andersson, after-

1. Mr (afterwards Sir) William Jackson Hooker, F.R.S., L.S., and F. Wern. Soc. Edin., produced his "Journal of a Tour in Iceland in the Summer of 1809," 2 vols. 8vo, London, Longmans

wards Burgomaster of Hamburg, there published his "Nachrichten von Island," which was translated into Danish and French. His statements were contradicted in 1750 by the Dane Niels Horrebow, "Tilforladelige Efterretninger om Island med ett nytt Landkort, og 2 Aars Meteorologiska Observationer," also translated into German and English.

The marking book of the last century was the "Introduction à l'Histoire de Dannemark," par M. Mallet, à Copenh. 1755, 2 vols. 4to. It was reproduced in English and German. This pioneer of northern literature was born at Geneva, became French Professor at Copenhagen (1752), travelled in Norway and Sweden (1755), returned home and died (1762). The work is obsolete, but Mallet's "Northern Antiquities," edited by Bishop Percy, and supplemented by Mr I. A. Blackwell, would form a valuable item of Bohn's Library (London, 1859), were it provided with a decent index, and purged of the blemishes which now dishonour it. Imagine the effect of such a note as this (p. 42): "The Himalaya, or Heavenly mountains; the Sanskrit, himala, corresponding to the M. Gothic himins; Alem. himil. . . . Engl., heaven."

In 1766-67, M. de Kerguelen Tremarec voyaged over the North Sea, and published in 1772 his "Relation d'un Voyage dans la Mer du Nord." In 1772, Uno Von Troil accompanied Sir J. Banks to Iceland, and wrote a most valuable series of twenty-five letters. They have been reproduced in many collections: the edition always referred to in these pages is the 4to of Robson, London, 1780, kindly given to the author by Mr Bernhard Quaritch. Another important book is that of Eggert Ólafsson and Biarni Pállsson (usually Danised to Olafsen and Povelsen), "Reise igienem Island, with Zoega's Botanical Observations," 2 vols., Soroe, 1772, 4to; it was translated into German and into French, and a compendium of it, given in English, was largely quoted by Henderson. In 1772, Bishop Finn Jónsson (Finnus Johannæus), the learned author of the "Historia Ecclesiastica Islandiæ (vols. 3, Hafn., now very rare), treated of the "depopulation of Iceland by cold, volcanic eruptions, and famine." Guðbrandur Thorlacius, Bishop of Hólar, also wrote a "Letter concerning the Ancient State of the Island." In 1789, Mr (afterwards Sir) John Stanley addressed two "Letters" to Dr Black, which were printed in the "Transactions of the Royal Society of Edinburgh."

The various collections of "Voyages and Travels" contain many interesting notices of Iceland. The "Scoprimento dell' Isole Frislanda, Eslanda, Engroenlanda, Estotilanda, and Icaria, fatto per due fratelli, M. Nicolò il Cavaliere et M. Antonio, Libro Vno, col disegno di dette Isole," appears in Ramusio, vol. ii.; in Purchas, iii.; and in Hakluyt, iii. Hakluyt, i., gives "King Arthur's Voyage to Iceland" (A.D. 517), and King Malgo's conquest (A.D. 580), by "Galfridus Monumentensis." Also "A Briefe Commentary of the True State of Island" (or Iseiland, both used indiscriminately), by Jonas Arngrim. Volume iii. reprints "A Voyage of the ships 'Sunshine' and 'North Starre' (of the fleet of Mr John Davis), to discover a Passage between Groenland and Iseiland" (A.D. 1586). J. Harris (Navigantium atque Itinerantium Bibliotheca; or, a Compleat Collection of Voyages and Travels, 1705 and 1748), in book ii., chap. ii., sec. 30, p. 489, et seq. (edition 1748), offers "A Voyage to the North, containing an Account of the Sea Coasts and Rivers of Norway . . . and Iceland, etc." (circa 1605), "extracted from the Journal of a Gentleman employed by the North Sea Company at Copenhagen." "A Collection of Modern and Contemporary Voyages and Travels," published by Sir R. Phillips (London, 1805), reprints (vol. ii.) "Travels in Iceland, performed by order of His Danish Majesty, etc., by Messrs Olafsen and Povelsen" (the Ólafsson and Pállsson before alluded to), translated from the Danish, map and four plates. Kerr ("A General History and Collection of Voyages and Travels, etc.," 1811-24) has a chapter (vol. i., sec. 1, p. 4, et seq.)

and Murray, 1811. 2d edition, 1813. The author had lost his notes with the ship which carried him, and wrote much from memory, hence the extreme cacography of the Icelandic words. Henderson (ii. 136, note) finds the work "intolerably free-thinking"—times have changed. The botanical notes are valuable, and the volumes will, despite all their disadvantages, take rank as "classics."

2. Sir George Steuart Mackenzie, Bart., President of the Physical Class of the Royal Society, etc., published his "Travels in the Island of Iceland during the Summer of the year 1810," Constable, Edinburgh, 4to; and the book reached a second edition in 1812. He took charge of the geological and mineralogical departments, whilst Dr (the late Sir Henry) Holland and Dr Bright (of Bright's disease) studied the history and literature, the zoology and botany. The illustrations and statistical tables are highly valuable; and although the Geysir theory is now utterly obsolete, literary Icelanders still consider the volume an authority upon scientific matters.

3. "Iceland, or the Journal of a Residence in that Island during the years 1814 and 1815." By Ebenezer Henderson, Ph.D., M.R.S. Gottenburgh, Hon. M. Lit. Soc. of Fuhnen, and Corr. M. Scan. Lit. Soc. of Copenhagen. 1st edition, 2 vols. 8vo, Oliphant, Edinburgh, 1818. 2d edition, 1819. A notice of his book will conclude this Section.

4. "Statistisk Udsigt over den danske Stat i Begyndelsen af Aaret, 1825, af Frederik Thaarup, Etatsraad," 8vo, Kjöbenhavn, 1825, with Atlas. Valuable for tables of figures.

5. F. Paully. "Topographie von Dänmark einschliesslich Islands," etc., Altona, 1828.

6. Björnus Gunnulaugi, filius. "De Mensurâ et Delineatione Islandiæ interioris," etc. In Monasterio Videyensi, 1834.

7. John Barrow, jun. "A Visit to Iceland" (in 1834), published in 1835: the volumes are highly useful, as affording an excellent comparison of the past with the present.

on the Discovery of Iceland by the Norwegians in the ninth century about A.D. 861. J. Laharpe (vol. xvi.) quotes Horrebow (1750), Anderson (1746), Jonas Arngrim, and "Flocco, a Norwegian pirate." The "Allgemeine Historie der Reisen zu Wasser und zu Lande," etc., Leipzig, 1769 (pp. 1-63, map and plate), contains "Besondere Geschichte von Island."

8. The Hon. Arthur Dillon published "A Winter (1834) in Iceland and Lapland." 2 vols. Colburn, London, 1840. The season happened to be especially rigorous, of course preventing long travels into the interior: the studies of agriculture and fisheries have especial interest. Mr Dillon has visited Iceland more than once.

9. "Lettres sur l'Islande," par X. Marmier, 8vo, Paris, 1837.¹

10. "Voyage en Islande et au Groenlande, exécuté pendant les années 1855 et 1856 sur la Corvette 'La Recherche,' commandée par M. Tréhouart, Lieutenant de Vaisseau dans le but de découvrir les traces de la Lilloise. Publié par ordre du Roi, sous la direction de M. Paul Gaimard, Président de la Commission Scientifique d'Islande et de Groënland." 8 vols. 8vo.

Tome 1. Histoire de Voyage, par M. P. Gaimard, 8vo, Paris, 1838.

„ 2. Histoire de Voyage, par M. Eugène Robert, 8vo, Paris, 1850.

„ 3. Journal de Voyage, par M. Eugène Mequet, 8vo, Paris, 1852.

„ 4. Zoologie et Médecine, par M. Eugène Robert,² 8vo, Paris, 1851.

¹ In 1837 appeared the first southern attempt at a novel upon hyperborean subjects—"Han d'Islande," which Jules Janin (*Les Catacombes*, i. 102) described as "Cette vive, passionnée et grossière ébauche d'un homme qui avait Notre Dame de Paris dans la tête et les Orientales dans le cœur." The great author's mind must have been very young when he wrote it. This silly and childish farrago bears the same relation to "Notre Dame" as "Titus Andronicus" to the "Tempest" or to "Othello." Han is an impossible savage, ever with a *temple sous un crâne*. Ordener is a ridiculous Timon, and the sudden conversion of Schuhmacher to absurd benevolence is worthy of caricature-loving Dickens. With the exception of a few striking remarks, it shows more of fury and frenzy than of fine wit. It forcibly calls to mind the late Prosper Mérimée's harsh judgment of M. Victor Hugo as a poet: "He is all imagery. There is neither matter, nor solidity, nor common sense in his verse; he is a man who gets drunk on his own words, and who no longer takes the trouble of thinking." And Han d'Islande explains how the austere old littérateur detected a vein of insanity in the greatest poet of the French Revival, the Romantic School which dates from 1830.

Nor amongst travellers can we reckon M. Jules Verne's "Voyage au Centre de la Terre," the least meritorious of the "terribly thrilling" and marvellously impossible series; its scene is chiefly below "Sneffles" (*Snaefelljökull*), a sniffing disguise, which seems to have been, but is not, invented in jest.

² M. Robert was the mineralogist, geologist, and botanist of the expedition; he received special directions from M. Adolphe Brogniart (Professor of Botany in the Museum of Natural History, Paris); he traversed the greater part of the island in 1835-36, and at his request Hr Vahl, a Danish botanist, who had lived long in

- Tome 5. *Minéralogie et Géologie*, par M. Eugène Robert, 8vo, Paris, 1840.
- „ 6. *Physique*, par M. Victor Lottin, 8vo, Paris, 1838.
- „ 7. *Histoire d'Islande*, par M. Xavier Marmier, 8vo, Paris, 1840.
- „ 8. *Littérature Islandaise*, par M. Xavier Marmier, 8vo, Paris, 1843.

This expedition was determined upon in the year 1835, and was followed by another in 1836. The government of Louis Philippe, claiming to be in the van of civilisation, resolved to give the voyage a scientific aspect, and to publish it regardless of expense—the cost is about £21. It is admirably got up, with every *luxure* of printing; there is Gallic discipline in the strict editorial control; and each contributor is allowed full advantage of space and illustrations—what a contrast to the shabby article which ultra-economical England would have produced! But, though semi-official, it is an immense mass of undigested information, greatly varying in value; and the President, who had accompanied Captain Freycinet in the circumnavigating frigate “*Uranie*,” is not generally over-appreciated in Iceland. His illustrations are so exaggerated as to be simply ridiculous, and unfortunately they have been transferred to the pages of succeeding authors. Thus Dufferin borrows the two Needles off Snæfell and the Icelandic girl, and Paijkull takes Hekla, whilst the cave of Surtshellir and the domestic interior are reproduced by Forbes, who gives additional horrors to the Bruará.

11. “*Historia Ecclesiastica Islandiæ ab anno 1740 ad annum 1840*,” auctore P. Pétursson. Havniæ: Bianco Luno, 1841. A continuation of the learned Hannes Finsson's well-known book, written in Danish and Latin by the present Bishop of Iceland.

12. Lieutenant-Colonel North Ludlow Beamish, “*Discovery of America by the Northmen in the Tenth Century, with Notices of the Early Settlements of the Irish in the Western Hemisphere*” (1841).

Greenland, revised the published lists, especially Hooker's, and drew up a fresh list, corrected to 1840. Since that time, Iceland has been visited by Mr Babington of Cambridge (1846), who also made collections. For others, see Section VII.

13. Vol. 28 of the Edinburgh Cabinet Library. Edinburgh, 1840. A compilation.

14. "Physisch-geographische Skizze von Island mit besondere Rücksicht auf Vulcanische Erscheinungen." Von W. Sartorius von Waltershausen. Göttingen Studien, 1847. Erste Abtheilung Seiten 321-460, Göttingen, 1847. The author visited the island in 1846; his scientific reputation attracts readers, but he writes with a prodigious exaggeration on general subjects, and especially on scenery.

Amongst books of Icelandic travel, again, we cannot include the "Letters of Columbus," edited by Mr R. H. Major, Hakluyt Society, 1847, and recording the remarkable visit of the explorer in A.D. 1477 to the country which in mediæval times discovered the New World. The fact had already been established by Finn Magnússon in his "Nordisk Tidsskrift for Old-Kyndighed." This was followed by the even more interesting "Voyages of the Venetian brothers Nicolò and Antonio Zeno to the Northern Seas in the Fourteenth Century" (written out by Antonio Zeno, and first edited in 1558 by their descendant Nicolò Zeno, junior. Mr Major has identified "Frislanda" with Færøisland of the Danes; "Estlanda" on the map, and "Estlanda," "Eslanda," and "Islande" in the text, with the Shetlands; "Porlanda" with the Orkneys; "Engronelanda" with Greenland; "Estotilandanda" and "Drogeo" with parts of North America; and the mysterious "Zichmni" with Henry Sinclair, Earl of Orkney and Caithness. He has also "rehabilitated" Ivar Bardsen and the lost Gunnbjarnarsker, the Skerries of Gunnbjörn, son of Ulf Kraka, who reached them in A.D. 877.

15. Professor Robert Wilhelm Bunsen of Heidelberg (nat. 1811) visited Iceland with M. Descloiseaux in 1846, spent eleven days at the Geysir, and published two papers: (1.) Memoir on the intimate connection existing between the pseudo-volcanic phenomena of Iceland (works of the Cavendish Society, "Chemical Reports and Memoirs, edited by Thomas Graham, V.P.R.S., London, Harrison, 1848); and (2.) On the processes which have taken place during the formation of the volcanic rocks of Iceland (from Poggendorff's "Annalen," part i, Nov. 1851, "Scientific Memoirs, selected from the Transactions of Foreign

Academies of Science, and from Foreign Journals," London, Taylor & Francis). The great chemist's article on Palagonite in the "Annalen der Chimie und Pharmacie" (vol. lxi.) won for him the Copley medal of the Royal Society of London; and his studies on Iceland are the basis of modern scientific knowledge. It is to be regretted that his two admirable papers are buried in bad translation amongst the voluminous transactions of obscure societies, and their reproduction in a popular form would be a boon to travellers not only in the island, but also throughout the volcanic world. Mr B. Quaritch kindly allowed the author to make manuscript copies of these two articles: they have afforded material to the able lecture "On some of the Eruptive Phenomena of Iceland," by Dr John Tyndall, F.R.S. (Royal Institution of Great Britain, June 3, 1853).

16. P. A. Schleisner. "Island undersøgt fra et lægevidenskabeligt Synspunkt," Copenhagen, 1849. The author, an employé of the Danish Government, resided some time on the island, and made useful physiological observations—one of them has before been alluded to.

17. Madame Ida Pfeiffer ("Reise nach dem skand Norden," 1845), after travelling in Syria and "the East," visited Iceland in 1844, hoping "there to find Nature in a garb such as she wears nowhere else." She laughs at the "dreadful dizzy abysses;" but the "dignified coldness" of the popular manners and the selfishness, only too apparent to an undistinguished foreigner, made her write what Mr Pliny Miles ungallantly calls a snarling, ill-tempered journal. The American traveller, also, is too severe when he says, "Where she does not knowingly tell direct falsehoods, the guesses she makes about those regions that she does not visit—while stating that she does¹—show her to be bad at guess-work." Her translated volume, "A Visit to Iceland," etc. (London, Ingram, 1854) has been analysed in the "Cyclopædia of Modern Travel" (Bayard Taylor, 1856).

¹ The writer could have learned this only from Iceland information, and he should have been more cautious in listening to the islanders, especially when they were criticising what they consider a hostile book. On the other hand, Madame Pfeiffer has left an impression upon the reader that the clergy take money from travellers—which is certainly not the case now, and probably never was general.

18. "Bidrag til Islands geognostiske Fremstilling efter Optegnelser fra Sommeren, 1850" (Contribution to the Geognosy of Iceland, from Observations made in the Summer of 1850), by Theodor Kjerulf. Published in the "Nyt Magazin for Naturvidenskaberne," vol. vii., part 1, Christiania, 1853 (New Magazine of the Natural Sciences, which records the transactions of the Physiographical Society of Christiania), an excellent equivalent of our "Annals of Natural History." The author differs from Von Waltershausen and Bunsen upon the genesis of Iceland (Dr W. Lauder Lindsay).

19. "Norðurfari, or Rambles in Iceland," by Pliny Miles, 12mo, New York, 1854. The author was the first American tourist who visited the island (1852), and he attempts little more than an entertaining narrative of his adventures. There is a fair amount of "spread eagle," and the tone is "England for ever, and America one day longer." An officer nearly cuts a shark in two with a sword. The whales can be heard from one to two miles off, and spout every one or five minutes, throwing up water from thirty to fifty feet—they must blow like himself!

20. "Tracings of Iceland and the Färoe Islands," by Robert Chambers, London, 1856. The author visited the island in 1855, voyaging on board the Danish cruiser "Thór," the first steamer—before his time the dangers of the northern seas were faced by sailing craft. The little book was translated into Danish, but the islanders affect to despise it.

21. "Voyage dans les Mers du Nord à bord de la corvette 'La Reine Hortense,'" par M. Charles Edmund. Paris: Levy, 1857. The author describes Prince Napoleon's tour in a volume which has all the characteristic merits and faults of the average French traveller. In the following pages it will be called the "Napoleon book."

22. Messrs Wolley and Newton confined themselves, with an especial object in view, to one particular parish in the southwestern corner of Iceland. An "Abstract of (the late) Mr J. Wolley's Researches in Iceland, 1847, 1851, and 1852, respecting the Gare Fowl, or Great Auk;" by Alfred Newton, M.A., F.L.S., appeared in the "Ibis" of October 1861. The author's name is sufficient warrant for the value of this excellent paper.

In Baring-Gould (Appendix, p. 400), Mr Newton quotes numerous works upon the avi-fauna of Iceland.

23. "Letters from High Latitudes," by Lord Dufferin, London, 1858. The amiable author visited the island at the same time as Prince Napoleon, and proposed to cross the unknown tract between Hekla and the north-eastern coast; unfortunately the yacht "Foam" was carried away by the attractions of Jan Mayen and Spitzbergen. The adoption of a quasi-dramatic form has caused the book to be pronounced "most entertaining and perhaps a little extravagant;" it is written in the best of humours and in the most genial style, but it has failed to please the islanders who do not understand *plaisanterie*.

24. J. Dayman. "Deep Sea Soundings between Iceland and Newfoundland," etc. (1858).

25. "A Hand-book for Travellers in Denmark, Norway, Sweden, and Iceland," with maps and plans. London: John Murray, 1858, and republished in 1871. The island is dismissed in barely three pages, which contain a vast variety of errors; for instance, the population is preserved at 60,000; we are taught to write "Almannia Gja;" and we are told that Henderson wrote before 1825—*connu!* The recondite blunders may almost compare with the four pages on Istria in the "Hand-book for South Germany." Happily for the traveller, Baedeker's excellent series is speedily consigning the cumbrous and tedious "Murrays" to well-merited oblivion.

26. J. Hogg. "On the History of Iceland" (1859).

27. D. Streye. "Beskrivelse over den ϕ Islandia," etc. Kjöbenhavn, 1859.

28. G. Thomsen. "The Northmen in Iceland," etc. (1859).

29. "Iceland: its Volcanoes, Geysers, and Glaciers." By Charles S. Forbes, Commander Royal Navy (Murray, London, 1860). The volume was kindly lent to the author by Captain Bedford Pim, M.P.; and its merit has been acknowledged by the general regret that there is not "more of it."

30. C. Irminger. "Strömninger og Isdrift ved Island." Kjöbenhavn, 1861.

31. "Reise nach Island im Sommer 1860." Mit wissenschaftlichen. Abhängen von William Preyer und Dr Ferdi-

nand Zirkel. 8vo, Leipzig, 1862. The statistical part is exceedingly valuable. The work also contains the most complete notice of the birds that has been published after the "Prodromus der isländischen Ornithologie," by Friedrich Faber, better known as "Fugl Faber;" but it is judged that "the writer has not shown sufficient discrimination in its compilation."

32. "A Tour in Iceland in the Summer of 1861." By Edward Thurstan Holland, A.M. Chap. i., vol. i., 2d series: "Peaks, Passes, and Glaciers; being Excursions by Members of the Alpine Club." Edited by Edward Shirley Kennedy, M.A., F.R.G.S. London, 1862. The author attempted in 1861 to ascend the southern side of the Öraefa Jökull, but the mists prevented his enjoying the good fortune of Swend Paulsson and of Henderson.

33. "The Oxonian in Iceland; or Notes of Travel in that Island in the Summer of 1860." By Rev. Frederick Metcalfe, A.M. 12mo, Hotten, London, 1861. This traveller crossed a bit of new country north-east of the Sprengisandur, and thus deviated from the common line. He has preserved the traditional exaggeration which characterises Icelandic travellers, and the dangers which he faces on Mount Hekla must have been simply a dream. His map, purporting to be reduced from Olsen's, is peculiarly bad.

34. W. Lauder Lindsay, M.D., F.L.S. "On the Flora of Iceland," New Philosophical Journal; and "On the Eruption, in May 1860, of the Kötlu-gjá Volcano, Iceland." Neill & Co., Edinburgh, 1861—valuable papers which should accompany the traveller. They were kindly lent to the author by Mr William Longman.

35. G. G. Winkler. "Island seine Bewohner," etc. Bravansch, 1861.

36. M. Barbatier de Mas. "Instructions nautiques sur les Côtes d'Islande." Paris, 1862.

37. A. J. Symington. "Pen and Pencil Sketches of Færoe and Iceland." Longmans, London, 1862. Unpretending.

38. "Iceland: its Scenes and Sagas," by Sabine Baring-Gould, M.A. London: Smith & Elder, 1863. This handsome volume of 447 pages is written with an object, to illustrate the Sagas and to represent their *Mise en Scène*. The author sees the

Icelander as he is; the topography is that of a geographical traveller; and the book contains an immense amount of useful information. Taking the realistic view, this excellent work is not a favourite in Iceland; my only complaint is that it lacks an index.

39. C. Irminger. "Notice sur les Pêches, etc., de l'Islande." Paris, 1863.

40. Carl Vogt. "Nordenfahrt von Dr Berna" (1863).

41. "Notes on a Trip to Iceland in 1862." By Alexander Bryson. Edinburgh: Grant, 1864. The object of the livret (56 pages) was to gauge and to determine the heat of the Geysir tube, by means of deversing thermometers; and the author has sensibly questioned the "central-heat" theory.

42. M. Thoyon. "Renseignements sur quelques Mouillages sur la Côte d'Islande." Paris, 1865.

43. "Travels by 'Umbra'" (Clifford). Edmonstone & Douglas, Edinburgh, 1865. The author, by ascending the Jökull of Eyrikr, that northern Cacus, reached eternal winter's drear domain. He justly derides the horrors and terrors of Búlandshöfði.

44. "The North-Western Peninsula of Iceland," by C. W. Sheppard. London: Longmans, 1867. This was the author's second excursion, and he ascended the Dránga Jökull in the north, where the mountains are lower and accessible.¹

45. W. C. Paijkull. "Bidrag till Kännedomen om Islands Bergshyggna." Stockholm, 1867. Translated by the Rev. M. R. Barnard, M.A. London: Chapman & Hall, 1868. The author, now dead, was a Swede, and professed geology at the University of Upsala; he travelled in 1865, and unfortunately neglected to supply his volume with an index and a decent map. Its merits are much debated, and, as a rule, its tone is

¹ Amongst Icelandic travels we cannot include the valuable commercial papers, often alluded to in these pages—(1.) by Mr Vice-Consul Crowe, "Report on the Fisheries, Trade, and General Features of Iceland, for the years 1865-66;" and (2.) by Mr Consul Crowe, "On the Trade and Fisheries of Iceland, for the years 1870-71." It is evident that the able author has not been in Iceland or he would not say "the schools are excellent and well attended," when there are absolutely no schools. It is to be regretted that the Foreign Office does not enable writers to correct their proof-sheets; we should then not have in a single page such blemishes as Skrid Sökler (Jöklar); Oræfa Tokull (Jökull); Odada-hrann (Ódáða Hraun); and Kekjavik-cum-Keykjavik (for Reykjavik) repeated throughout the paper.

greatly disliked by the islanders. An excellent authority, Dr Hjaltalín of Reykjavik, who has published several important studies of his native land,¹ considers it of scant value; on the other hand, Mr Jón A. Hjaltalín recommends it for its moderation to English travellers.

46. H. Mohn of the Institut Météorologique de Norvège. "Temperature de la Mer entre l'Islande et l'Ecosse." Christiania, 1870.

47. "A Report on the Resources of Iceland and Greenland." Compiled by Benjamin Mills Peirce, U.S. State Department, Washington Government Printing Office. The author was charged by Mr Secretary Seward to inspect the sulphur mines, 1868. He personally visited the island and produced a useful paper, collating the accounts and the figures published by his predecessors; but, like such compilations generally, it abounds in errors, and it makes scanty attempt to discriminate the various value of the information which it gleans.

48. "Six Weeks in the Saddle: a Painter's Journal in Iceland." By S. G. Waller. London: Macmillan, 1874. An unpretending volume which has held its ground at Mudie's, and which carefully avoids disputed points and exaggerated statements. The illustrations are very poor compared with the charming studies of scenery and animals made by the author, and it wants index and map, without which the home-reader will hardly follow the line over the now rarely visited southern shore.

49. The *Alpine Journal*, No. 45 (Longmans, London, 1874), contains "Interesting Notes on Mountain Climbing in Iceland," by Dr James Bryce, who also during the same year published his "Impressions of Iceland" in the *Cornhill Magazine*. He justly remarks that the difficulty is not so much to climb the peaks as to traverse the inhospitable desert separating them from the inhabited parts.

Mr S. Baring-Gould (Intr., pp. xxxiv., xxxv.) gives a catalogue of the fifteen books and manuscripts usually found amongst the priests and farmers; and in Appendix D. a list of Icelandic

¹ Dr Hjaltalín has written many articles on sanitary matters and the natural history of Iceland, which have appeared in various periodicals, Icelandic, Danish, and English. He has also published for several years the "Heilbrigðistíðindi" (Sanitary News).

published Sagas (thirty-five), local histories (sixty-six), annals of bishops (twelve), annals of Norway, etc. (sixty-nine), and romances translated into Icelandic (nineteen), a total of 201; besides law-books, Bible stories, and tracts on poetry, geography, astronomy, etc. The various editions of the Bible and of the Testament, as well as the newspaper press, will be noticed in future pages.

Miscellaneous general information concerning Iceland is found in the following works: The *Foreign Quarterly Review* (vol. ix., Jan.-May 1832) contains an excellent paper on the "Literature and Literary Societies of Iceland." The "Mémoires de la Société Royale des Antiquaires du Nord" are a mine of information to the student. Mrs Somerville's "Physical Geography." The "Progress of the Nation," by G. R. Porter, Esq., F.R.S. ("Institute of Natural Science," Paris correspondence. London, 1851). "Meddelelser fra det statistiske Bureau," vols. i.-vi. Kjöbenhavn, 1852-1861. In the fourth volume of the "Description of the Coast of Iceland" ("Fierde Hefte af Beskrivelsen over den islandske Kyst") by P. de Löwenörn, is a paper which was strongly recommended for translation to the author of these pages by Captain Tvede of Djúpivogur. The various numbers of the "Mittheilungen aus Justus Perthes," etc. Herschel's "Physical Geography," 2d edition, Edinburgh, 1862. Lippencott's "Complete Pronouncing Gazetteer, or Geographical Dictionary of the World," 8vo, Philadelphia, 1866. Chambers' and other Cyclopædias. Bayard Taylor's "Cyclopædia of Modern Travel," New York, 1856. "Cyclopædia Britannica," vol. xii., 1856. Knight's "English Encyclopædia" (pp. 1333-1345) of 1873, has printed an admirably condensed paper on Icelandic language and literature, by Mr Jón A. Hjaltalín.¹

As the "marking book" of the last century was M. Mallet's "Antiquities," so there are three which distinguish the present age. The late Mr Benjamin Thorpe's "Edda of Sæmund the Learned"² (London: Trübner, 1866) is a text-book of Scandi-

¹ Near the end of the paper we read, "Iceland was now (after union with Norway) governed as a colony;" this assertion, it is said, belongs not to the author but to the editor.

² Laing's "Heimskringla" is a work of a very different kind, not translated from the original.

navian mythology delighting Icelanders by the literal rendering of their classical poem; it must be familiar to the student before he can attack the difficulties of Skjaldic song. The second is the "Story of Burnt Njal," etc., by George Webbe Dasent, D.C.L. (2 vols., Edmonstone & Douglas, Edinburgh, 1861). The introduction is the work of a scholar; the translation rivals Lane's "Arabian Nights," in fidelity, picturesqueness, and, withal, sound old English style, and the maps and plans well illustrate the topography. It has sent one, it will send many an English tourist to gaze upon the Lithe-end; and it will serve as an example how such books should be treated. But the *magnum opus* of the day, the greatest boon to students yet known, is the "Icelandic-English Dictionary" (3 vols. fol., Macmillan & Co., 1869, 1870, and 1874).¹ Based upon the MS. notes of the late Richard Cleasby, under whose name, as is his due, it is referred to in these pages, the work was enlarged and completed by the first of Icelandic philologers, Mr Guðbrand Vigfússon, M.A., formerly one of the stipendiaries of the Arna-Magnæan Library at Copenhagen. The herculean task has been completed after the patient toil of nine years (1864-1873), and all credit is due to the delegates of the Clarendon Press, who "generously fostered this Icelandic Dictionary and made it a child of their famous university." The introduction, by Mr Dasent, awards high praise to the work, but nothing that he can say is too high.

Iceland is not in want of maps; almost every traveller has contributed his own, and hence the atlases have borrowed a variety of blunders. The most interesting of the older sort are those of Hendries (Jodocuf, A.D. 1563-1611), which shows a curious acquaintance with certain *fodinæ sulphurææ*; and of Pontanus (A.D. 1631) Auctore Giorgio Carolo Flandre. The latter displays Hekla, the towering cone of our childish fancies, vomiting a huge bouquet of smoke, while it ignores all other volcanoes.

¹ The author can practically answer for its value. When travelling in 1872 he had only the first volume, and thus whilst tolerably acquainted with the words between A and the first half of H, he found it impossible, within given limits, to master the rest. In the "Days of Ignorance" it was necessary to learn Danish in order to use the Icelandic Dictionary. It is only to be hoped that the English-Icelandic half of the work will follow in due season, and doubtless some enterprising publisher, like Mr Trübner, will presently give us portable editions of both.

The islands are especially incorrect: the "Westmanna seu Pistilia (for Papyli ?) Eijar," fronted on the main by "Corvi Albi,"¹ are out of form and measure; the archipelago called I. Gouberman (Gunnbjörn Skerries ?) off the north-western coast, does not exist; and Grimsey has dimensions which are strange to it. As in all of them; the north is placed too high; the Arctic circle traverses nearly the centre of the island, the furthest septentrional point being N. lat. 68° 15'. The eastern shore is also laid down too far west (E. long. Ferro, 10°): hence, as Barrow shows, Arrowsmith's map of 1808 was sixty-seven miles wrong in the longitude. Henderson supplies Krisuvík with a non-existing inlet upon which foreigners have counted for embarking their sulphur, and reduces the vast Mýrdals Jökull to the Kötlu-gjá fissure.

Shortly before the time when Henderson travelled, several Danish officers, detained in Iceland by the war with Great Britain, began an exact trigonometrical survey, not only of the coast, but of the interior; and their bench-marks still crown many a conspicuous point. Their names, well remembered by all Danes upon the island, were the "Herr Officeerer," Major Scheel, Lieutenant Westlesen, and Landmaler (surveyor) Aschlund. After 1820, the work was carried on by Captain Born, Lieutenant (afterwards Captain) W. A. Graah,² R.N., an adventurous sailor, and a scientific officer, who died about a dozen years ago. Between 1820 and 1826 the following five sheets were published:

¹ Possibly a confusion with the pied crow (*C. leucophaea*) of the Færoes. In Scandinavian mythology the raven was white, but, like the Hajar el Aswad of Mecca, it turned black in consequence of babbling and tale-bearing.

² He made an expedition to East Greenland in 1828-29; and his volume was translated by the late E. Gordon Macdougall, and published (London, Parker, 1837) by the Royal Geographical Society of Great Britain—a most sensible step. His determination that the East Bygd was on the west coast has of late been successfully questioned by Mr R. H. Major (Ocean Highways) through the 1507 edition of Ptolemy, the map of Van Keulen (circ. A.D. 1700), and the "Chorography" of the old Greenland colony, with sailing directions for reaching it from Iceland by Ivar Bardsen, steward of the colonial bishop. Captain Graah had denied the existence of Gunnbjörn's Skerries, and so forfeited the guidance of Ivar Bardsen. His book, however, is a valuable study of hyperborean regions generally, and especially useful as a standard of comparison between Iceland and Greenland. In the latter we find the hot springs of Önnartok depositing silicious sinter, like the Geysir and Strokkur, whilst the unfinished church of Kakortok reminds us of Færoese Kirkjubæ.

1. Snæfellsjökull to Cap Nord, in 1820, by Frisch, Westesen, Smith, Scheel, Born, and Aschlund.
2. North Coast, in 1821, by Majors Ridder and Scheel, and Captains Frisch and Born.
- 3 and 4. South Coast, in 1823, by Scheel, Born, Graah, and Aschlund.

5. East Coast, in 1824, by Olsen, Born, Graah, and Aschlund.

The general chart of 1826, uniting these "trigonometrical, geographical, and hydrographical surveys," is, according to Mr Alexander Findlay, F.R.G.S., carefully executed, and became the basis of all subsequent issues.

Unfortunately, it is the local fashion to ignore these scientific preliminary labours,¹ in favour of Professor Björn Gunnlaugsson's large map, which was executed after a comparatively running survey, during the twenty years from 1823 to 1843, and which, after being drawn up by the late Major Olsen, was printed at Copenhagen in 1844. The title is *Updráttir Íslands á fjórum blöðum* (in four sheets) *gjörðr að fyrirsögn* (executed under the direction of) Olafs Nikolas Olsen, *gefinn út af enu* (published by the) *Islenzka Bókmentafèlgi*. The scale is $\frac{1}{180000}$, about six or eight miles to the inch. The four-sheet edition has three different tintings—one physico-geographical, the second administrative, and the third hydrographical, giving soundings, etc. In London it costs £2, 2s.; at Reykjavik, \$9 (= £1). There is a portable edition, a single sheet ($\frac{1}{90000}$), of two kinds, physico-geographical and administrative, costing six or seven shillings. The third or smallest size, prefixed, with sundry alterations, to these pages, costs one shilling at Reykjavik.

Of miscellaneous cartography we have the following: Dr Heinrich Berghaus's "Physikalisher Atlas," Verlag von Justus Perthes,

¹ The fact is, it has become a party question. Hence strangers who, like Dr W. Lauder Lindsay (p. 7, "On the Eruption, in May 1860, of the Kötlu-gjá Volcano, Iceland"), are otherwise employed than in making general inquiries, ignore the basis. When this great *opus* was printed (1844), few countries in Europe had charts on such a scale, so accurately detailed, and so well engraved. Even at present it wants only the names of places being made more legible; it is still the standard work, for which seamen and landsmen have reason to be grateful, and it forms a solid foundation for future addition to all time. Mr Thorne (Ramsdale, Thorne, & Co.) kindly lent his copy to the author, who ungratefully kept it nearly three years.

Gotha, 1852; Colton's "Atlas of the World," New York, 1855; Hr Kiepert's "Allgemeiner Hand-Atlas der Ganzgen Erde," Weimar, in Verlage des Geographischen Atlas, 1873; and the excellent "National Atlas" of Keith Johnston (sen.).

The latest charts are English, French, and Danish—the latter being also used by the Norwegians, who have none of their own.

(a.) The English Admiralty chart, "Iceland Island," was based upon the Danish survey (1845; corrected, 1872).

The nomenclature of our hydrographic works greatly wants reform; even the exact Raper adheres to "Reikiavíg" and to "Sneefeldsyökell."

(b.) The Danish charts principally used are:

1. Kaart over Pollen i Skutilsfjord, Isefjords Dybet, opmaalt fra Skrueskonnerten Fylla, Junii, 1865-67.
2. Islands Vestkyst, Stykkishólmr med Grunder og Kolgrafa-Fjörðr, 1869.
3. Kaart over Island, med omgivende Dybder, 1871.

(c.) The French, as we might expect from their commercial activity, had published before 1868 about a score more of charts and harbour plans than all other nations. The principal are:

1. Carte réduite des Côtes Septentrionales d'Islande depuis le Cap Nord jusqu' à l'île Malmey, 1822.
2. Carte réduite des Côtes Occidentales d'Islande, depuis Sneefields-Jokel jusqu' au Cap Nord, 1822 (Cartes danoises de Löwenörn).
3. Carte réduite des Côtes Occidentales d'Islande, depuis Fugle-Skiaerene jusqu' à Huam Fiord, 1822 (Cartes danoises de Löwenörn).
4. Carte réduite des Côtes Septentrionales d'Islande, depuis l'île Malmey jusqu' au Cap Langanaes, 1823 (Cartes danoises Löwenörn).
5. Carte réduite des Côtes Meridionales d'Islande, depuis le Cap Ingolfs-Höfde jusqu' au Cap Riekienaes, 1832 (Cartes danoises de Löwenörn).
6. Carte réduite des Côtes Orientales d'Islande, depuis Vopna-Fiord jusqu' au Cap Ingolfs-Höfde, 1832 (Cartes danoises de Löwenörn).

7. Carte réduite d'Islande et des îles Feroës, 1836. D'après les Cartes danoises de Löwenörn et de Born.
8. Plan de la baie de Reikiavik, 1842 (MM. West; De la Roche, ingénieur-hydrographe; R. de Saint-Vulfran, et autres officiers de la Marine, 1840).
9. Plan du Mouillage d'Onondar Fiord; Plan du Mouillage de Patrix-Fiord (Islande), 1845; corr. 1862 (MM. Brosset et Soyer, officiers de la Marine).
10. Plan de l'entrée du Hyal-Fiord, 1855 (MM. Caraguel, Borius, et Rapatel).
11. Plan du Mouillage d'Eské-Fiord. Croquis des Mouillages du Spath et de Svartas-Kiær, 1855 (MM. Duval, H. Lavigne, et Delville).
12. Carte de Dyre-Fiord, 1856 (MM. de Rochebrunne, Mathieu, et Ternier).
13. Plan des Mouillages de Dyre-Fiords, 1856 (MM. Mathieu et Ternier, 1855).
14. Plan du havre de Gröne-Fiord, 1855; corr. 1858 (Veron et autres officiers de la Marine, 1857).
15. Plan de Faskrud-Fiord, 1858 (MM. Barlatier, De Mas et Pottier, 1856).
16. Plan des passes de Rode-Fiord, 1858 (MM. Veron, Pottier, etc., 1857).
17. Carte des atterages de Reikiavik (Faxe Bugt) 1859. Houzé de l'Aulnoit d'après les travaux exécutés de 1853 à 1857.
18. Plan-croquis du havre de Nord-Fiord, 1860 (MM. Veron, Launay, etc., 1858).
19. Plan du havre de Kolgraver-Fiord, 1860 (Veron et autres officiers de la Marine, 1858).
20. Plan de la partie de la Côte Sud du Brede-Bugt (Côte Occidentale d'Islande) 1861.
21. Croquis du Mouillage de Hogdal dans Dyre-Fiord, 1861 (MM. West, lieutenant du vaisseau, et De Sédières, aspirant).
22. Carte de l'entrée du Golfe de Berú-Fiord et de la baie de Hammard-Fiord. Carte du Breidals Bugt, 1862.

23. Plan du mouillage d'Akureyré (Oë-Fiord), 1864 (Butter, lieutenant de vaisseau).
24. Plan de Skutils-Fiord et du port de Pollen, 1867 (MM. Guérard et Petit de Baroncourt).
25. Croquis du mouillage de Bildal dans Arnar-Fiord, 1867 (MM. Guérard et Petit de Baroncourt).

This section can hardly end more appropriately than with a notice of Dr Ebenezer Henderson's two volumes which, though published in 1818, and although we no longer land in Iceland as in Africa (i. 9), are still useful in 1874. The author died in 1829, but he is remembered by the islanders; and his name, cut in Hebrew letters upon the "soft yellow tufa" (Palagonite), the nafna-klettur (Wady el Mukattab) of Hýrtardal, nearly sixty years ago, is, and long will be, shown to travellers. Lacking scientific training, and, probably, one of the *seri studiosorum*, for his learning, especially his Hebrew, reads like an excrescence upon the simple journal, this writer has solid merits, and he enjoyed unusual advantages. His style is respectable; he has an exceptional eye for country, rare in the traveller as catching the likeness is in the portrait-painter; his powers of observation are remarkable, as shown by the observations upon the Skriðjökull; he received every attention and much information from the clergy, in those days even more powerful than now; his employment as a colporteur of the "Sacred Oracles," which, by the by, were so faultily translated that they did not deserve to supersede Bishop Guðbrand's version, threw him much amongst the people; and his extensive travels during three years enabled him to publish the best, because the most general, book on Iceland known to the English tongue.

On the other hand, his pious expressions are so obsolete, that in these days we look upon them as almost irreverent. He has all the narrow-mindedness of the early nineteenth century—the Georgian era and the golden age of the evangelical middle classes. His credulity is astounding; he has a bulimia of faith; he eagerly records every ridiculous tale he hears—if you disbelieve him, you are a sceptic with a sub-flavour of atheism. He quotes without surprise the igneous vapours attaching themselves to the persons of the inhabitants; the under garments of a farmer

being consumed when the outer suit was uninjured; and the lightning which burned in the pores of a woman's body, singeing the clothes she wore (i. 311, 316), a tale frequently copied by others. He borrows his natural history from Horrebow, and from Ólafsson and Pállsson, who wrote in A.D. 1755. The weakest fox manages to secure all the food (ii. 98). The silly bear deluded by the mitten, a fable so well known to children's books, is his. Upon the authority of a parson and an old woman, he supplies the *Mus sylvaticus* not only with a cow-chip canoe, but also with a mushroom carpet-bag (ii. 185): it excels the *animantia plaustra* of Polignac's Anti-Lucretius. His terrific descriptions of the road and the ford, dangers mostly fanciful, and his exaggerated horrors, must not be set down to want of manliness. An earnest and pious man, he yearns in every page to pull off his hat, to fall upon his knees, and to thank protecting and preserving Providence for some imaginary hair-breadth escape. The French travellers made observations for temperature and other matters in the floods which he describes as the most dangerous; and his eight-miles-an-hour current (i. 181) is simply a delusion.

The book has one great element of success, and the string of initials appended to the author's name prove that it has been successful. To use a popular phrase, all his "geese are swans" — a view highly flattering and very agreeable to the good geese, but a process hardly likely to leave a truthful impress upon the unprejudiced reader's brain. He complains that there *are* free-thinking priests, but every clerk he meets is a model of orthodox piety. He vaunts the hospitality of the land, and only casually lets fall the remark that, although he was employed on a highly popular mission, a single peasant refused to take money from him. Critics are agreed upon his estimate of "J. Milton's *Parádsar Missir*," by Jón Thorlakson.¹ "The translation not only rises superior to any other translation of Milton, but rivals, and in many instances in which the Eddaic phraseology is introduced almost seems to surpass, the original. . . . Thorlakson has

¹ Every serious Icelandic traveller of the nineteenth century has alluded more or less to the career of the Rev. Jón Thorláksson, parish priest of Backa, who

ly supported its prevailing character, but has nicely imitated his (author's) peculiar terms and more refined modifications. . . . And "although Thorlakson has found it impossible to give the effect of certain sounds, yet this defect is more than compensated by the multiplicity of happy combinations which none exist in the original" (vol. i., 98). All good judges agree that the Icelander has recast Milton in Scandinavian style, and has produced a beautiful Icelandic poem upon the same old groundwork. The narrow bounds of the narrative metre (*Fornyrðalag*) could never contain the now sweet now harsh Miltonic verse; and the last sentence quoted from Mr. Rask, as well as his own specimens of the work, clearly show his ignorance of what a translation should be.

William Longman, Vice-President of the Alpine Club, has done good service to the Icelandic traveller by digesting Mr. Rask's Itineraries (*Suggestions for the Exploration of Iceland*: Longmans, 1861), and by adding many useful

best becomes a poet, in poverty, and who died in poverty, æt. seventy-five, . . . He thus laments his hard fate:

"Yes: Penury hath been my bride
 Since e'er I saw the world of men;
 And clasped me to her rugged breast
 These seventy winters all but twain:
 And if we separate here below,
 He knows who made it so."

Living," besides glebe and parish gifts, was £6 per annum, of which half was paid to an assistant (Henderson and Barrow); and he did not live to receive the money collected for him in England. He translated Pope's *Essay on Man*, and *Paradise Lost*. The three first books of the latter were translated by the *Islenzka Lærdómslisti-félag* (Icel. Lit. Society) before it was founded in 1796. The original MS. is deposited in the rooms of the Literary Club, London.

n-yrði, an old word, an archaism; hence Eddaic verse. We may illustrate the translation by Peirce Plowman:

"I looked on my left half
 As the *Lady* me taught,
 And was *ware* of a *woman*
Worthlyith clothed."

agnússon and Rask thus converted Virgil into narrative verse:

"Arma virumque
 Cano, Trojæ
 Qui primus ab oris
 Italiam,
 Fato profugus,
 Lavinaque venit
 Littora," etc.

items of information. But the reader, however capable, must not expect to carry out the programme. In page 30 the author seems to think ten days sufficient to attempt the ascent or exploration of Kötlu-gjá, Kálfafell, Skeiðarárjökull, Öræfa, and Breiðamerkr Jökull. Each of these "congealed Pandemonia," with the inevitable delays in travelling from one to the other, would probably consume a fortnight. Iceland is no place for *dilettanti grimpeurs*; it has neither comfortable inns nor Bureaux des Guides—these Alps are not to be passed over *summá diligentiá*; and M. Jules Verne's balloon has not yet found its way there.

§ 2. PREPARATIONS FOR TRAVEL.

Icelandic travel is of two kinds—the simple tour and the exploration. Most men content themselves with landing at Reykjavik, and with making the Cockney trip to Thingvellir, the Geysir and Hekla, perhaps visiting the Laxá, Laugarnes Bessastaðir, Hafnarfjörð, Krísvík, and Reykir. Others add to this a run to the local Staffa, Stappa, a more or less complete ascent of Snæfellsjökull, and a visit to Reykholt, Surts-hellir, Baula, and Eldborg. If more adventurously disposed, they cross the Arnarvatnsheiði and the Stórisandur to Akureyri, the northern "capital;" they push from Hekla across the Sprengisandur and the centre of the island; or they land at Vopnafjörð, and traverse the north-east corner viá the Mý-vatn to Húsavik.

For these and other beaten paths very scanty preparations are necessary. Tourists usually exceed in their *impedimenta*. One party brought out butter where "smjör" is a drug; a second imported the Peter Halkett air-boat and wooden paddles, for crossing rivers three feet deep;¹ a third carried a medicine-chest, where air and water are perfection; a fourth indulged himself with a fine patent reading-lamp, where diamond type is legible at the "noon of night"—a new edition of warming-pans to Calcutta, skates to Brazilian Bahia, and soldiers' pokers for stirring

¹ As will appear in the Journal, all the principal streams have ferries or some *succedanea*, and no Iceland guide is in the habit of exposing himself recklessly.

wooden fires in Ashanti-land. The "Oxonian in Iceland" his advice was taken by another tourist party, who invested £20 in presents for the clergy and clergywomen, books, razors and pen-knives, scissors and needles, ribbons and silk kerchiefs: on return to Reykjavik these inutilities fetched a dollar per pound. The only gifts required are silver specie; if you make a present, you are a *richard*, and your bill, as all the world over, will be doubled. To the usual travelling-dress add fishermen's kit,¹ not the dandy Mackintosh, which sops at once in the pelting and penetrating rain. The boots should meet the waterproof: Mr Metcalfe objects that with such gear you cannot walk, and that if your pony fall in one of the "giddy rapid rivers," you will be pounded to death by stones and water—but possibly you were not "born to be drowned." Perhaps the best wear for the nether man would be long waterproof stockings, not the wretched stuff of West-End shops, nor Iceland oilskins, which are never impermeable, but Leith articles made for wear, drawn over common boots and overalls, fastened round the waist, and ready to be cast off in hot and sunny weather, or when preparing for a walk over lava. Horses and horse-gear, as well as tents and mattresses, will be described in another place. A common canteen, with iron plates and cups, lamp and methylated spirits, suffices for the cooking department. Cigars, tobacco and snuff, must be carried by those who are not likely to relish the island supply; also tea and cognac, if coffee and Danish "brandy-wine" are not good enough. Sundry tins of potted meat and soup and a few pounds of biscuit are the only other necessities, to which the traveller may add superfluities *ad infinitum*. The fishing-rods and nets, the battery, instruments and materials for writing and sketching, must depend upon the tourist. It is as well for him to bear in mind that he will suffer from stinging gnats and midges near the water as much as from thirst, the effect of abnormal evaporation, upon the hills, and from dust and sand upon the paths called roads.

Exploration in Iceland is a very different affair. In these

¹ Hunter & M'Donald of Leith sell sou'-westers for 2s.; outer and inner hose, at 3s. 6d. and 2s. 6d.; sailors' trousers, for 10s.; stout oil coats, at 18s. 6d.; and fishermen's mitts, at 1s. 3d. Foreman, also of Leith, supplies excellent boots for £2, 10s.

days when a country, apparently accessible, has not been opened, we may safely determine *a priori* that its difficulties and dangers have deterred travellers. Here the only parts worth the risk, the expense, and the hardships, are the masses of snowy highland thrown into one under the names of Vatnajökull and Klfajökull, and the great desert, Ódáða Hraun, subtending their northern face. To investigate these "awfully romantic" haunts is a work of expenditure; and tourists arriving in Iceland know nothing of what is wanted. A party of less than four, one being a Swiss or Færoese mountaineer, would not be able to separate when necessary; and each must have ten horses,¹ as food, forage, and fuel have all to be carried. In the snow and the lava they will find nothing, and the tent will be the only home. Provisions would be represented by barrels of biscuits, bread, beef, and pork, with compressed vegetables, the maximum weight of each keg being 40 lbs. For drink, whisky or other spirits, the forbidden oil of whisky to be preferred if procurable. Patent fuel and pressed hay can travel in Iceland crates. At least one of the party should be able to shoe horses, so as not to rely upon the guide, who may perhaps prick two hoofs in one day. A change, or better still two changes, of irons for each nag, and four times the number of nails, must be the minimum: the lava tears off everything in the shape of shoes, and three hours without them lame the animal. The party might set out about early June in a schooner hired at Copenhagen, and land their impediments at Djúpvoggr. After buying ponies and engaging native servants, they would ascend the Fossárdalur, strike the lakelets called Axarvatn and Líkarvatn, ford the Jökullsá near its head, and penetrate into the great snow-fields. Or they might make the Lagarfljót at Hallormstaðir, ferry over the river, establish a depot at Valthjófstaðir, or Egilstaðir, the highest farm up the valley, and march south.

For the snowy range, the explorer needs all the "implements

¹ A very young traveller, Mr John Milne, F.G.S., has thus taken the author to task: "Fancy yourself with forty horses, riding over snow bridges by the dozen." Is it then necessary to explain that the ponies are intended for the Ódáða Hraun, a tract about the size of Devonshire? When Mr Watts started on his second expedition, he declared it was "essential that the party should not be less than six," and he preferred eight, calculating that the expenses would not exceed £50 per man.

of Alpine warfare," with the addition of a pair of inflatable boats, each carrying two—the reason will appear in the Journal. Ice-axe and spikes can be bought from Moseley, Henrietta Street, Covent Garden; and ropes from Buckingham, Broad Street, Bloomsbury: all these articles are also sold by J. S. Carter, 295 Oxford Street, "under the patronage of the Alpine Club." Mr Whymper prefers the Manilla rope, though somewhat heavier than Italian hemp; the former being 103, and the latter 93, oz. per 100 feet. They should not break with a lighter weight than 2 tons, or 196 lbs. falling 8 feet, or 168 lbs. falling 10. At least four 100-foot lengths¹ should be taken; and the tyro, who had better stay at home, should learn from "Scrambles among the Alps" (London: Murray, 1871), the way to tie and not to tie. The knapsack and alpenstock must be light; Mr R. Glover, Honorary Secretary of the Wanderers' Club, kindly assisted the author in applying to the War Office, Pall Mall, for one of the "male bamboos," now used as cavalry lances: it proved, however, somewhat heavy. A cousin, Edward Burton, was also good enough to send for a pair of *truviers*, or Canadian snow-shoes; but these rackets are not so useful as those of country make.² Boots for riding, for walking, and for wading, are absolutely necessary. Binoculars, French grey spectacles, and sun-veils must not be forgotten, and when they come to grief, the face, especially the orbits, can be blackened, after the fashion of the Cascade

¹ "Ropeing" is not a new thing, as many Alpine travellers seem to think. Pállson, when ascending Óræfa Jökull (1794), used "a rope about ten fathoms in length," and "left a distance of two fathoms" between himself and his two companions. The latter is the modern average, the extremes being nine and fifteen. The author never heard of Icelanders objecting to this precaution, but "G. H. C.," who in August 1, 1874, inspected the Kötlu-gjá (*Field*, October 10, 1874), says that his two guides "apparently regarded such proceeding in the light of a capital joke, and, connecting the idea with that of horses (*i taumi*) at a sale, declared 'they had never heard of a horse-fair on a Yokull.'"

² Every kind of snow requires its own shoe. Thus the Norwegian "skies" are very different from the Iceland skí, which resembles the Finn "öndrar," or "andrar." These articles are six, seven, and even twelve feet long, by five inches wide, in fact like large cask-staves. The front ends are a little bent up, and the sides are garnished with iron (saddlers') D's, through which leather thongs, or bands of willow-withes, are passed to secure the feet. Sometimes for facility of turning, one is made longer than the other, and the Lapps sole the right foot with hairy skin, so as to hold the snow in the back stroke. The alpenstock in Iceland is a bone handled staff, with a stout spike: the author never saw the stick shod with a wheel three inches broad, and safe against sinking, which is used on the Continent.

Range Indians, with soot and grease—the explorer will look like an Ethiopian serenader, but there will be no one to see him. Watches and instruments must be in duplicate, or, better still, in triplicate. The map should be in four sections, guarded from the wet with copal varnish; and skeleton pocket-maps save trouble. Mr Longman (Suggestions, etc.) supplies a copious list of explorer-tools: the author travelled with two pocket aneroids, a larger one left behind for comparison; three B. P. thermometers; Saussure's hygrometer; a portable clinometer; an *aréomètre selon Cartier*; three thermometers (max. and min.); two hygrometers, the usual wet and dry bulbs;¹ a prismatic compass; and Captain George's double pocket-sextant—almost all supplied by Mr Casella. A six-pocket waistcoat, with an inner pouch for money, is the handiest way to dispose of the aneroid, small field thermometer, compass, clinometer, silver-sheathed pencil, pen-knife, and strong magnifying glass. Mr Watts, a young law-student, of whom more presently, suggested for crevasse crossing a ladder twelve feet long, which, turned up at one end, might serve as a sledge: it reminded me of Mr Whympers's troubles. This, together with the bamboo alpenstock, the snow-shoes, lamp, spirits of wine, kegs, and other small necessaries, were left at Djúpivogr for the benefit of future travellers.

For the Ódásá Hraun, besides food, forage, and fuel, the explorer will require to carry water. The sun's heat is intense even after Syria; and dust-storms, when not laid by sullen, murky sheets of mist, or the torrents discharged by angry, inky clouds, are bad as in Sind and the Panjáb. Native attendants must be carefully rationed: they will live, at their own expense, on bread and butter, or rather on butter and bread; but they will eat the best part of a sheep at the employer's, and they will drink, as the saying is, "any given quantity." On the Hraun, Rigby's "Express Rifle" may be useful in case of meeting a reindeer, and pistols and bowie-knives will encourage the guide to defy the *Útilegumenn, les hommes hors de la loi*, with whom

¹ One of the thermometers was broken on the way to Edinburgh, and, curious to say, it could not be repaired in the capital of Scotland. Professor C. Vogt prefers to the Alpine Sympiesometer, the *Barometre Compensé Metallique* of M. Richard, Rue Fontaine du Roi, Paris: he used it in Iceland, and found it answer admirably.

their superstitions people these solitudes. It is as well to carry glycerine for chafes and sunburns, poor man's plaister, and materials indispensable in case of accidents. The holsters should contain lucifers, and the coat-pockets metallic note-book and measuring tape, insect bottle with bran, and an old magazine for carrying plants to camp.

The Reykjavik guides will assuredly refuse to accompany such an expedition, and will declare that no Icelander can be persuaded to say yes. This, as will be seen, is not the fact. But raw men who take scanty interest in exploration, can hardly be expected to incur great risks. About the end of July, somewhat late in the year, students *en vacance*, speaking good Danish, a few words of English, French, and German, and perhaps a little "dog Latin," would be persuaded by three or four rixdollars per diem to become "vacation tourists," and something more. They must not be treated like common guides, and they also should be furnished with strong boots and bedding, for nights on the lava and in the snow.

This long Introduction may conclude with a pleasant quotation from Prof. C. Vogt: "Plus je reporte mes souvenirs vers notre voyage accompli cet été, plus je me sens attiré vers l'Islande, dont la nature, éminemment sauvage, porte un cachet tout à fait particulier, et dont le sol volcanique offre encore tant de questions à résoudre." And the traveller's memory will in future days dwell curiously upon the past, when

"The double twilights rose and fell
About a land where nothing seemed the same,
At noon or eve, as in the days gone by."



THE DWARFIE STONE, HOY, ORKNEY.

ULTIMA THULE;

OR,

A SUMMER IN ICELAND.

CHAPTER I.

THE STEAM-SHIP "QUEEN"—THE ORKNEYS AND MAES HOWE—THE
SHETLANDS AND THE FÆROE ISLANDS.

ADIEU, O Edinburgh! whether thou prefer to be titled Edina, Dun-Edin, Quebec of the Old World, the Grand Chartreuse of Presbyterianism, Modern Athens—a trifle too classical—or Auld Reekie, good Norsk but foul, fuliginous, and over familiar. Many thanks for the civilities lavished, with one "base exception," upon the traveller, who returns them in a host of good wishes. *E.g.*, May the little lads and lasses that play ball and hop-scotch upon thy broad *trottoirs* presently rise, like the infantry of Ireland and the Cici of Istria, to the dignity of shoes and stockings! May the odious paving-stones, which, under gigantic "busses," make thee the noisiest as thou art the most picturesque city in the empire, disappear before the steam-roller and the invention of thine own son Macadam: the former, after having long been used in the virgin forest of the Brazil, has at length found its way to London, and why should it not travel north? May unclean wynd and impure close, worse than the Ghetto of Damascus, perish with krames and lucken-booths, and revive in broad way and long square! May the railroad cars put in an appearance amongst the open hackneys, whose reckless driving, like that of the Trieste jarvey, seems to be connected in business with the undertaker; and may the stands no

longer be wholly deserted on the Scoto-Judaic Sabbath! May there be some abatement and mitigation of the rule, "Let us all be unhappy on Sunday"—when man may drink "whusky," but "manna whistle"—that earthly and transitory equivalent, as the facetious Roman Catholic remarked, for the more durable, but haply the not more unendurable, Purgatory! May thy beef lose its pestilent flavour of oil-cake, thy dames look less *renfrognées*, and thy sons unlearn the stock phrase which begins every answer "Eh! nae!" And lastly, St Giles grant that so hospitable a city may condescend to set on foot a club where the passing stranger, not only the "general commanding," can see his name enrolled for a month or two of membership, and no longer suffer from the outer darkness of utter clublessness!

The spring of 1872 was tardy and dreary, and though I had left London *en route* for Iceland shortly after mid-May, June began before the normal severity of a septentrional summer justified departure northwards. Travellers of the last generation were still subject to the sailing ship. Mr Chambers and his party are the first (1855) who had the chance of a "smoky Argosy," and the wild island-fishermen flocked to save a ship which appeared to be on fire, whilst the country people fled from the monster to their lava fastnesses. So in 1832 the first steamer passing the Shetlands coast, greatly excited the unsophisticated peasantry by suggesting witchcraft—I am not sure that some did not expect Thor to be on board. So, finally, Captain Trevithick's "puffing devil" was held by Cornishmen to be the gentleman in black; and French peasants shot at balloons, holding them to be monstrous birds.

During the summer of 1872 there was embarrassment in the wealth of conveyance. The royal mail steamship (Danish Government) "Diana" touches at Granton¹ and Lerwick once a month between March and November. The Norwegian steamer, "Jón Sigurðsson," visited the chief port of the Shetlands with a certain irregularity, but the electric telegraph could always give timely warning. The "Yarrow" of Glasgow, belonging to Mr Slimon, ran during the season; and Mr Robert Buist of Edin-

¹ The *Saturday Review* (December 14, 1872) informs its readers that the Danish mail packet runs from Leith—which it does not.

burgh chartered the "Queen" from the Aberdeen, Leith, and Clyde Shipping Company. We shall see them all in due time.

Accompanied by my brother Stisted, I ran down to Granton betimes on June 4, along a road whose sides are coped walls, not rails and hedges, through a country still showing early spring, although some six weeks more advanced than Iceland. A couple of hours' delay gave us time to inspect Granton, and we owe it a debt of gratitude for saving us the mortification of ancient Grangemouth. Scotch tourists in Iceland compare its regularity with the irregularity of Reykjavik: it is regular as a skeleton, this sketch-town, this prospectus, this programme-city with its three piers—the Mineral, the Middle, and the Break-water; and with its square composed of two sides, the gaunt, grim hotel forming half the whole. The staple trade appears limited to blue-green barrels of the old "petreol," which now seem to travel all round the world.¹ The central quay—whose promenaders, though no longer fined threepence, may not smoke—is remarkably good; and wind-bound ships affect the harbour, because its bottom is soft mud, and because they are charged for shelter only one penny per ton during the whole stay, discharging cargo for sixpence instead of a shilling at Leith. The place is the property of the bold Buccleuch, who, bolder this time than even at the British Association, expended, *ὡς λέγουσι*, £1,200,000 for an annual consideration of £15,000. Despite its stout-hearted progenitor, it is a dull, young Jack of a settlement, all work and no play; but we shall find it perfect civilisation, a little Paris in fact, on landing from Reykjavik.

At 1.30 P.M. we cast loose, or, to put it more poetically with a modern author, we assisted at the "chorus of sailors," who are supposed to sing—

"The windlass ply, the cable haul
With a stamp and go, and a yeo-heave-oh!"

The little knot of friends—T. Wright of the 93d and D. Herbert of the *Courant*—wave farewell hats from the pier. It is an

¹ From most parts of the world, too, even from Hungary and Fiume, the casks are sent back to the United States, not broken up, but in bulk, because the heavy freight pays well where labour cannot be bought.

exceptional day. The German Ocean wearing an imitation azure and gold robe, with the false air of a southern sea, treacherously promises a yachting trip. The smoke of many steamers forms a thin buff canopy, far-stretching over the waste of pale sky-blue waters striped here and there with long bands of yet milkier hue—*placidi pellacia ponti*. The Firth of Forth somewhat reminded me of the fair entrance to Tagus; only here, instead of obsolete windmills and huge palaces, we see red-tiled roofs and tall stacks, artificial fumaroles vomiting pitchy vapours—the various symbols of a very busy race. Along the populous shores of the Fifeish “kingdom” whose *riant* hills are loved by foxes that love lambs, where the Lomonds give a *faux-air* of resemblance to the Bay of Bombay, rise successively Burnt-island, Kinghorn, Kirkcaldy, Wemyss, and Leven with gables facing the sea and fringing the main, “as lace embroiders the edges of a lady’s petticoat.” After yet a little time there will be a single line of habitation along what the late M. Alexandre Dumas, the inventor of the “Lapin Gaulois,” called the “Fifth of the Fourth, or sea arm running up to Edinburgh,” and its limits will be Dunbar and St Andrews. In the rear rises the lumpy blue sofa that formed Arthur’s Seat, a local Cader Idris, very like, under certain aspects, the Istrian Monte Maggiore; here the husband of Queen Guenevere is what Wallace and Auld Michael are to the rest of Scotland, ‘Antar to Syria, the Devil or Julius Cæsar to Brittany, and Sæmund-the-Learned-cum-Gretti-the-Strong to Iceland. The volcanic outcrop, famed by Huttonians, is flanked to the north by the basaltic Salisbury Crags, whose billows of stone I had last seen in the limestone cliffs of Marmarún or Dinhá (*vide* Unexplored Syria); and a thin white thread at the base denotes the “Radical Road” (to Ruin), round which the ragged ruffians and rascals run.

And so we steam past Inchkeith; here a tall lighthouse is flanked seawards by a pile of buildings which would have been better sheltered on the other side, and which ought to be a mass of batteries like Gibraltar. We cannot but remark the utterly defenceless state of the northern capital, which lies literally at the mercy of a single ironclad, commanded by any Paul Jones. But happily in these days we battle with gold not with steel;

we arbitrate instead of fighting. Otherwise we might be tempted to propose torpedo stations, iron-riveted turrets, and other appliances of an art which the policy of the last five years has made utterly antiquated, not to say barbarous. The Westminster players of 1872 grumble—

“ Ah ! minimè refert quid sentiat Anglia ! Totam
Mutandis sese mercibus illa dedit.
Pacis amans quovis pretio, maris arbitra quondam
Nunc ipsa externo pendet ab arbitrio—”

and grumble in vain.¹ However, “we have heard about that before.” We have also heard of yon quaint pyramid on the starboard bow, concerning which Mr Henderson says (i. 36), “The term ‘Law’ is still applied to many hills in Scotland, as ‘Largo-Law,’ and so forth.” But the verbal resemblance to the natural Lögbergs (law-mounts) of Iceland,² Orkneys, and Shetlands, corresponding with the artificial moot-hills of Scotland, is a trivial accident which has caused a philological stumble. “Law” is simply the Anglo-Saxon Hlæw or Hlaw, primarily a low hill, secondarily a tumulus, cairn, or sepulchral burrow (Bearw or Bearo), heaped over the dead, as Lud-low the Low of Lude. Berwick-Law, though shaped very like a Lögberg, means only Berwick Hill. Farther east is the Bass, “sea-rock immense,” northwards steep to apparently the rule of the northern coast and the Orkneys, a broad-shouldered and misshapen stack rising, like Ailsa Craig, sheer from the sea, and now very far from being the “terror of navigators.”

During dinner, at the primitive and Viennese hour of four P.M., we had passed Fifeness, *alias* the East Neuk of Fife, not our “nook,” an indention, but the Norsk Hnjúkr or Hnúkr, a knoll; the high, lone hill, like Arthur’s Seat, occupies a long, blue tongue, which projects a perilous reef some ten miles out to sea. The Firth of Tay—“firth,” from Fjörð, is right; “frith,” from Fretum,

¹ I need hardly remark that this was written before the glorious days of February 1874, when the English nation, centuries ahead of Ireland, Scotland, and Wales, by one of the noblest constitutional revolutions known to its history, buried that *felo-de-se*, the Radical Cabinet, and pulled down its programme Dis-establishment, Retrenchment, and Non-intervention, the latest modification of Liberté, Egalité, Fraternité, and—Death.

² We have seen that in Iceland the Lögberg, or Hill of Laws, was confined to the Althing.

is wrong—with its many brethren, are foretastes of Iceland and Norway; the huge gapes of dwarfish bodies, embouchures whose breadth promises a length of many hundred miles, which the shortness of the watershed reduces to scores. Such are the estuaries and giant mouths of the Gaboon, and, indeed, of all the South African rivers save five—the Congo and Zambezi, the Rufiji, the Limpopo, and the Orange; and we need hardly go so far to study the feature, as the Mersey of Mercia is a first-rate specimen. We peer from a distance at the “Geneva of the North” (*proh pudor!*), the Faridon dé, the Donum Dei, famed in the days of terror as the abode of the “reverend citizen Douglas,” where of late the mob-caps have had a famous bout of “clapper-clawing” with the bonnets of bonnie Dundee; and where, according to its own *Advertiser*, “there are heathens who read newspapers during the Christmas holidays.”

Broad daylight blazed till ten P.M.; but fog, probably born of smoke, and marring the effect of the pretty sail, obscured the outlines of Fowls’ Heugh, in Kincardineshire. These are cliffs some 300 to 400 feet high, where adventurous cragsmen still risk broken necks to plunder birds’ nests. The Færoese hold that the unfortunates falling from great heights burst in mid air; and it has been remarked by those who have had ample opportunities of induction, that the many who have thrown themselves off the London monument wear placid countenances, showing none of the horrors of agonising death. It is possible, then, that the sudden shock may cause asphyxia and apoplexy—we will hope that it does.

Before “turning in,” as the wheezing of the wind and the pelting showers of blacks suggest, let us shortly survey the ship and our shipmates, a process which travellers apparently despise as unworthy of their high-mightinesses. The “Queen,” Captain William Reid, is a crowded little thing of 280 tons register; a startling contrast to Messrs Papayanni’s large and comfortable “Arkadia,” Captain Peter Blacklock, in which I last sailed as *the* passenger from Bayrút. She is licensed to carry forty-seven miserables; her old-fashioned engines half-consume twenty-three tons of coal in twenty-four hours; and her horse-power (230) makes her bore through the water at the maximum rate of nine knots.

She has no bath; washing is at a discount amongst these northerners; her offices are truly awful; and the berths are apparently built for Arctic exploration, or for the accommodation of General Tom Thumb and Commodore Nutt: the close vapours would generate nightmare, but, happily, only the stewards sleep in the main cabin. The food is profuse but primitive—giant tureens of oleaginous soup; fish which cannot be kept quite fresh; huge junks of meat, of course carved at table; mutton chops—not cutlets—all fat, or rather tallow; vast slices of “polonies,” lard-speckled, and very like the puddings of sheep’s blood farther north; marbled potatoes; graveolent cabbages; parsnips and carrots, hateful to Banting; poor bread; good hard biscuit; excellent butter, much enjoyed by Icelanders; rice puddings, and huge pies of rhubarb, locally called overring or southern wood; tea which resembles nothing that fancy can suggest; coffee much resembling a watery decoction of senna; excellent whisky; the usual brandy, *not* right “Nantz,” and gin clean forgotten.

The passengers are all first-class, and those who should be seconds pay somewhat less than the usual return fare, £6—board not included. In these lands, the three R’s are the great levellers; and for a certain roughness, moral as well as physical, we need hardly visit Canada or the Far West; our Lowlander, emphatically opposed to the Highlander, supplies us with an admirable specimen. Many of the travellers are bound northwards on business, and their “Gentlemen, who says feesh?” reminds us of Mr *Punch* and his “pudden.” There is a laird of the parts about Aberdeen, accompanied by an intelligent Scotch bailiff; an army man, Major B., and his brother-in-law, Mr S.; a navy man, Captain H., much addicted to fishing; another Piscator, popularly known as Johnny B.; and a missionary, who will not walk the quarter-deck on “the Sabbath.” He offers a tract to our parson—we can longer quote amongst British proverbs, “Coals to Newcastle”—the Rev. R. M. Spence, originally of Kirkwall, Orkneys, and now holding the manse of Arbuthnott. I must name him; his local knowledge was most valuable to all on board; it was given freely and without stint, and after his “parson’s week,” he was kind enough to correspond with me during my stay in Iceland. Kirkwall has produced much “good

company," but none better than the Reverend Spence. There is a stewardess, who stoutly cleared for herself the ladies' saloon. The steward and his mate are of the type often seen on board the "leather-breeches mob of steamers"—an epithet, mind, which I do not apply to the "Queen." They are fond of bumping you, of spilling the soup, of putting unclean towels upon your open books, of carrying a host of articles in one hand, of charging the smallest and meanest items, and of being peculiarly civil on the last day. The captain soon merits the general description of a "regular brick;" he has no pilot who knows coast or course, not a soul on board has ever been in Iceland, yet he accepts all responsibility like a man and a seaman; and he will spend on deck two successive nights of fog and wet. Finally, although the "Queen" is not one of the floating coffins which have roused Mr Plimsoll's just indignation, she was sent out in a peculiarly reckless way,¹ and without so good a sailor as Captain Reid, she—and we—ran the very best chances of coming to a bad end.

June 5.

During the few dark, or rather chiaro-oscuro, hours, we ran along the coast north-east and by east, turning the great shoulder north of Aberdeen. As the raw and rainy morning dawned, high loomed on the port bows Duncansby, popularly written Duncansbay, Head, whose castellated and ruin-shaped rocks of yellow-brown sandstone, streaked with white layers of guano, were new features to us; much resembling in form, though not in formation, what Iceland will show. The steep and frowning headland, sentinelled by needles, the Shetland "drons," the

¹ After many years of the "*quousque tandem!*" state of mind, my astonishment at the amount of legal murder authorised and sanctioned by authority in England, and my wonder that abuses so hideous did not become a public scandal, have been explained away by the sacrifices which the patriotic Mr Plimsoll found necessary before he could obtain a hearing. The manner in which his small inaccuracies of detail have been made to obscure the whole "palpitant question," the counter-charges of sensationalism and ultra-philanthropy which have been brought to refute the main charge, and the notable worship of Mammon and vested abuses, are hardly encouraging to the optimist's view of "progress." But the day is now done, let us hope, when crews of "murdered men" can be sent to sea in floating coffins insured at thrice their value. The simplest preventive would be an order that every consul should report all flagrant cases, with the express understanding, however, that he should not be punished nor be made to suffer for doing his "unpleasant duty."

Færoese "drengr," and the Icelandic "drangar," bluff to the sea, and sloping backwards in long brown-green dorsa, is lit up by a sickly, pallid sun, which picks out of the dark curtain the snowy wings of myriad sea-fowl. The parallel strata supply the celebrated flags of Caithness, and the softer parts are readily hollowed into "Devil's nostrils," Helyers,¹ or sea-washed caverns, with pyramidal entrances which cause frequent cliff-falls.

Beyond this point the coast is fretted into shallow bays of good soil, fronted by sandy beaches of dwarf proportions, and here and there by a small scaur; the chord is also pierced by long winding passages, incipient Fjörðs, whose vistas end in yellow shingle. These pasture-lands of Caithness are scattered with cots, "infield" and "outfield," but we look in vain for copse, wood, or forest. As a northern writer said some hundred years ago, "A single tree does not appear that may afford shelter to friendship and innocence" (why innocence?), and fuel must be supplied by wreck-wood and drift-wood, by peat and wrack, by cattle chips and bones. The cause is one from the Prairies and the Pampas to the Carso of Trieste, and the rich uplands of Spain, Syria, and the Haurán. Be the soil ever so fertile, its growth, without the protection of walls or depressions in the level, is soon blasted by the furious cutting winds. The experiment of planting pitch-pines (*Pinus picea* and *Pinus abies*) was tried by Governor Thodal of Iceland, but the trunks never rose above two feet from the ground, and, like Dean Swift, they died at the head. The scene already suggests Thule without its Jökulls; scattered byes, greenish túns ("towns," or home-fields), brown distances, low stone walls, and big bistre-coloured cliffs, black below where bathed by the flowing tide.

Behind Duncansbay Ness² we are shown the site of John o' Groat's House; there is no need to walk there, as a stage coach now runs along the fine broad road from the "(ex-) Herring Capital

¹ Found in St Helier, and written "Helyer" in the Scoto-Scandinavian islands. Evidently the Icelandic Hellir (*plur.* Hellar), a cave, common in local words, *e.g.*, Hellis-menn, the cave-men; it is akin to Hallr, a slope, a boulder, much used for proper names of men and women, as Hall-dór (Hall thor) and Hall-dóra (Cleasby).

² John Brand (A Brief Description of Orkney, etc., Edinburgh, 1701, Pinkerton, iii. 731) writes Dungsbie Head, and Duncan's Bay. The Scandinavian form of Duncansbay Head is Dungalansþpa.

of the North" (Wick). The old "Norwegian," as some miscall him, left Holland with Malcolm Cavin, and brought to Caithness a Latin letter from James II. of Scotland recommending him to the northern lieges. It is still a disputed point whether the Grotes of the Orkneys are the original stock, or drifted there through Scotland. Strangers are taken to the semi-historical ruin, a one-storied octagon, with its eight windows, which appeared fraternal wrath—if, at least, there were eight, and not two brothers. It is supposed to be a banqueting-hall, as there are no bedrooms, and only the photograph for sale at Wick, probably taken from some apocryphal sketch, caps it with a small look-out. A dull grey barn is here fronted by a dwarf sand-streak, up which fisher boats are drawn, whilst others, with stained sails, scud and toss over the unquiet waters. The colouring matter is peat. In the Bahia de S. Salvador (Brazil) the Piaçaba palm supplies the tannin-dye, while Venice and Dalmatia assert superior claims to art by rough pictures in coloured earths and oil. The object is everywhere the same—to make the canvas last.

And now with the rock ledges called "Pentland Skerries" on our right, we dance over the tide-rip of the terrible "Pightland Firth,"¹ which has become classical in the north, like Pharaoh's Ford in the Gulf of Suez. Mýsing, the sea-king, according to the Elder Edda, ended the "Peace of Fróði," by slaying Fróði, king of Denmark; he also captured the clattering hand-quern Grótti, and the two prescient damsels Fenja and Menja. The victor ground white salt in the vanquished ships until they sank in Pentland Firth, causing the main to become briny: there has ever since been a vortex where the sea falls into the "well" or mill's eye, and the roar of the ocean is the grinding of the quern.² And all this folk-lore because at times storm-wind meets tide running some five to seven knots an hour with "wavs" and "swelchies," causing sore grief to many a gallant ship. Yet there are men still young—Colonel Burroughs of the 93d (Sutherland) Highlanders is one—who habitually crossed this firth in open boats.

¹ Petlands Fjörð in Icelandic from Pight-land or Pict-land.

² For other interesting details see the Gróttasöngur, or Lay of Grótti.

We had now turned the north-eastern end of Scotland, where Ben Dorrery, a blue saddleback somewhat crater-shaped, rose supreme; and where Foss or cascade water, anciently Fors, draining Lake Lunnery, suggested Scandinavia. We presently passed the Paps of Caithness, and admired the grand profile of classical Dunnet Head,¹ whose flanks are horizontally streaked with broad golden patches, whilst a Cockney gun of our party brought out a swarming colony of birds from their cliffy homes. Behind it lay Thurso (Thjórsá, or Bull water), built with the dull grey stone of Bath, not the picturesque red of Edinburgh, nestling in the usual fertile bight, shallow withal and open to the northern ocean. We halted for the first and last time off Holburn Head to take in and deal out letters. Beyond it the picturesque Sutherland Highlands ended in a long line of bluffs remarkably quoin-shaped. Dim in the slaty and stormy sky rose Farout Head, not unlike the Elephant Mountain, the classical Mons Felix that outlies the murderous Somali Coast. Ten miles west of it rose

¹ The old Cape Orcas, derived, as has been said, from Latin Orca, Gaelic Orca or Orc, and Icelandic Orkn—"Delphinus orca," a dog-seal—the addition of *-cy*, an isle, makes Orkney. This point is the Ptolemeian Tarbetum or "Taruendum, quod et Orcas promontorium, finis Scotiæ dicitur," and unduly placed in N. lat. 60° 15', and long. 31° 20' (lib. i., cap. 3). The word derives from the Gaelic Tarbet, a drag, a portage, a haul-over, common names in Scoto-Scandinavia, and equivalent to the Icelandic Eið (aith). It lies only six miles from the nearest of the archipelago, which Pomponius Mela called Orcades, evidently a Roman corruption of the indigenous "Orkneyjar," the Irish Innsi Orca, and the Inis Tore of Ossian. Fordun's "Scotichronicon" (ii. 2) calls the Orkneys "Insulæ Pomoniæ;" and Buchanan says, "Orcadum maxima multis veterum Pomona vocatur." As *poma* are not abundant there, the name has caused considerable argumentation. In the "Société Royale des Antiquaires du Nord" (1845-49), and in the "Proceedings of the Society of Antiquaries of Scotland" (Edinburgh, Neill, 1852), Professor A. Munch, of Christiania, contributes an able paper, "Why is the Mainland of Orkney called Pomona?" Before his time Dr (D.D.) George Barry, in an excellent book, "History of the Orkney Islands" (London, Longmans, 1805) had derived Pomona from "pon," small (query, "Bú," a settlement, or "bol," corrupted to "bull," a house), and Mon, Patria; also from the Norsk terms signifying "Great-land." Professor Munch quotes Torfæus (Orcad., p. 5), "Pomona . . . a Julio polyhistor, Diutina appellatur." Solinus Polyhistor, facetiously known as Plinii Simius, says of Thule (chap. xxv.), "Ab Orcadibus Thyle usque quinque dierum et noctium navigatio. Sed Thule larga et diutina pomona copiosa est" (Thule is a fertile country, and plentifully productive of long-lasting corn). He would read the evidently mutilated text, "Sed Thule larga et Diutina pomona copiosa est," or "Sed Thule larga et diutina, Pomona copiosa est," and he finds that "Diutina ergò Pomona—ab esse ad posse valet consequentia." But it is over ingenious to account by the error of a text for a popular term four hundred years old, *e.g.*,

"Our rare Pomona, which the natives style
The Mainland."

the north-western Land's End of Scotland, a mere hummock low down upon the horizon. This was Cape Wrath, which some understand literally, whilst others derive it from "Rath," a conical hill, or a fortified place: it is evidently Cape Hvarf, a common name, as Hvarven, near Bergen, for a sudden turn of coast. "You should see it in December," said the steward, when we were disposed to deride its anger: he had doubled it in a casual vessel from Liverpool to Dundee carrying sugar and palm oil.

And now it is time to cast a look starboardways from Duncansbay Head. The first feature is Stroma Island (Straumsey, corrupted to Strome), bluff to the north-west, and sloping gradually to the south-eastern sea; the inner sound is a narrow channel, lately rendered safe by a red beacon. The scrap of land—a small item of the two hundred inhabited which form the British archipelago—is politically included in Caithness, but, popularly speaking, it belongs to the Scoto-Scandinavian race, the fourth great family of Great Britain, utterly dissimilar from the Norman of the Channel Islands, the Kelt, and the Anglo-Kelt. Their neighbours talk of the "poor sneaks of Stroma," and these retort by the opprobrious term "ferrie-loupers." The memory of many a broken head and bloody fray in bygone day is preserved in the couplet—

"Caithness cabses (*i.e.*, ticks), lift up your heads,
And let the Orkney sheep go by!"

How soon will telegrams and steamers—there is a daily mail between Thurso and Stromness—cause these local differences to share the fate of the national garb?

Behind Stroma, and towering over it in the purple grey cloud, is South Ronaldshaw, or Ronaldsha, in whose corrupted and degraded name we can hardly trace the pure and classical Norsk termination.¹ Properly Ronanse, from St Ronan, Ringan, or

¹ To quote the Dean's English, "it is part of a (Radical!) movement to help forward the obliteration of all trace of the derivation and history of words:" as such it may be highly recommended to the "Japs." The Icelandic or pure Scandinavian form, simple and compound, is *ey* (gen. and plur. *eyjar*); each vowel being pronounced distinct, and not confounded, as some foreigners do, with the German *ö* or the French *eu*. *Ey* is the Keltic "hy," as found in the classical Hy Brazile, the mysterious island west of Galway, and so called during centuries before the real Brazil was discovered. Again the form appears in "Ireland's Eye," which Cockneys pronounce Ireland's H'eye; the pure Irish form is *I* (O'Brien's Irish-English Dictionary, sub voce), or *aoi*, an island or region, which that learned

Ninian, it still preserves an old-world flavour. Till the last thirty years wreckers were rife: it was held "best to let saut water gang its gate;" in other words, uncanny, as we find in "The Pirate," to save a drowning sailor. Mariners lost all their rights when keel once touched sand; whatever was cast ashore became the lawful property of the people; Earl Patrick, who now is cursed at Scalloway because "he hung the Shetlanders," was blessed for his wise laws against all that would help ships amongst the breakers; a wreck was a sight to "wile the parson out of his pulpit in the middle of his preaching," and the blessing upon the shore was coupled with a wish that the Lord would send "mair wrecks ere winter." Men still remember the old Orcadian minister's prayer: "O Lord, I wish not ill to my neighbours, but if wrecks be going, remember Thy poor island of Sandey!"¹ The clergy feared to offend those sturdy pagans, their "little ones," by denouncing from the pulpit what the devoutest held to be a "dispensation of Providence." A pious fraud began by excommunicating all who broke the Sabbath in such Satan's work, and the course of time did the rest.

But old ideas do not readily die. Lately a farmer in Orphir parish (Ör-fjara, or Ör-fyri, "a reef covered by high tide"), having lost many head of cattle by "witching," applied to the "spae-wife," who prescribed the sacrifice of a bull-calf, probably by cremation, to Baal. The practice is, of course, kept secret, yet the best possible authority at Kirkwall told me he had reason to suspect that such offerings to the sun-god are by no means singular. The late pugnacious Sir James Simpson (Archæological Essays) also heard of a cow being buried alive as a sacrifice to the spirit of murrain. The Yule bonfires and the games of ball at that season were also in honour of the greater light.

Beyond South Ronaldshaw we had a fair profile view of Hoy (= Há-ey, high isle), a three-hilled, long, narrow parallelogram

writer derives (?) from the Hebrew "ai," insula, regio, provincia. "The Norwegian *øy*, the Danish *ø*, the Swedish *ö*, the Anglo-Saxon *ēg* (-land), and the German *aue*, are found in *ey-ot* and *Leas-ow*, *Chels-ea* and *Batters-ea*; and whilst the Orkneys corrupt it wofully, we retain it pure in *Cherts-ey*, *Aldern-ey*, and *Orkn-ey*" (Cleashby). Munch (Ant. du Nord) has corrected the error of Webster, who derives "island" from *ea* or *cy*, water (!), and *land*. It is simply *ey-land*, "terra insularis."

¹ Properly Sand-eið, or Sand-aith, a sand-isthmus connecting two headlands.

which took us some five hours to pass. The fierce south-westers which scoop and scallop western Scotland, like western Iceland and the occidental coasts of north Europe generally, render cultivation impossible except on the leeward side, where the "links" are.¹ *En passant*, it may be observed that the island capitals between Caithness and Iceland, as Stornoway of the Hebrides, Kirkwall of the Orkneys, Lerwick of the Shetlands, and Thorshaven of the Færoes, are all built upon the eastern shore. We strained eyes in vain to sight the position of Walter Scott's "Dwarfie Stones," so called *per antiphrasin*, says Brand; and equally vain was the "search for the great carbuncle" of Ward Hill, now invisible as the gem of the Diamond Rock, and probably never seen save by the eyes of faith. I heard of the same mysterious light in the far Gaboon River. We were more fortunate with the Hill of Hoy, the tallest part of the dorsum (1500 feet), whose "Old Man," which farther north would be called a "witch finger," appeared first a dot, then a column, and lastly a dome upon the summit of a huge cathedral. It is of the "Old Red," a pale, unfossiliferous sandstone, the normal material of the western mainland, though some describe it as a slaty formation supported by a base of granite, which also crops out near Stromness. According to Bleau, the mid-night sun can be seen from it in midsummer; Dr Wallace qualifies the statement by opining that the true solar body cannot be visible, but only its image refracted through some watery cloud upon the horizon. The last glimpse of Hoy was Ronay Head, a glorious bluff at least 1000 feet high, and beyond it lay nought save *pontus et aer*.

I will here step out of the order of my journey, which would more wisely have been reversed. To begin with Iceland is to begin at the end, neglecting the various steps and stages of Orkneys, Shetlands, and Færoes, whilst to describe the climax and its anti-climax, would be utterly uninteresting and bathetic. My three days (Sept. 10, 11, and 12) at the Church-bay (Kirkjuvágur, vögr, vad, waw, wall) produced some results, and these shall be briefly recorded.

¹ "Links," from Lykkur, locked or closed fields.

The good ship "St Magnus" ran up "the String" to Kirkwall Roads, and landed me after a ten hours' passage from Lerwick. My first care was to send my introductory letter, the gift of Mr Gatherer, to Mr George Petrie, well known in the anthropological world. He kindly led me to the little museum, which, like that of Lerwick, is far behind the order and neatness of Reykjavik. The collection contains good specimens of netting needles, cut out of rein and red deer bone: the former animal extended to the Orkneys, as broken bones have been found in the burghs, and suggest that they were continental. There were natural stone knives, looking as if shaped by art—the Brazil shows heaps of celts equally deceptive—pots of micaceous schist and steatite from Shetland; combs conjectured to have been used for ornamenting pottery; a two-handed scraper of whale's bone; specimens of "bysmers" and "pundlers," wooden bars used as steelyards, the former three, and the latter seven, feet long: they carried the Norwegian weights, "bysmars" and "lispunds,"¹ which took root in the Shetlands. I noticed the huge Varangian² fibulæ and torques; the querns still common amongst the islandry; red "keel" or pigment of silicious hæmatite, showing that even the artless dames did not ignore the art of rouge; rude beads of bone and clay; and a human skull with four rabbit teeth, possibly bevelled by the "bursten bigg," coarse roasted bere or barley, even as the Guanches of Tenerife ground down their molars with parched grain. My guide showed me his ingenious plan for "squeezes," and making casts of spearheads and similar articles by means of warmed gutta-percha applied to the stone, and lastly cooled in water.

Scapa (Skálpeiß) Brock, the highly interesting ruin discovered by Mr Petrie in 1870, was of course visited. At the Earl's

¹ "Bismari" in Icelandic is a steelyard, and "bismara-pund" a kind of lb. The Norwegian Bismerpund is = 12 Skaalpunds (100 : 110 Eng. avoird.), and the Lispund is = 16 Skaalpunds. The Icelandic word is Lifspund, from Lif, and = 18 lbs. Scots (Cleasby).

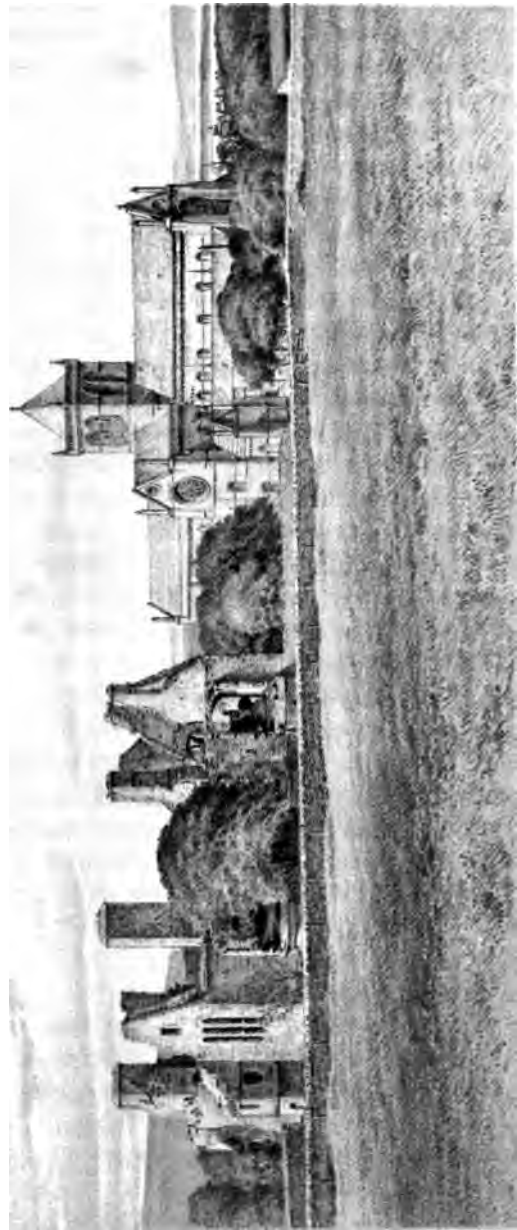
² Varangian, Icel. Væringi, from Várar, a pledge (al. Wehr, Vær, ware or active defence): the Væringjar of the Sagas, the Russian Vareger, the Βαρύγγοι of Byzantine historians, and our Warings, popularly known through Gibbon and "Count Robert of Paris," formed the Scandinavian bodyguard of the Eastern empire. These battle-axe men were at first Northmen from Kiew in A.D. 902, under the Emperor Alexis, and successively Danes, Norwegians, and Icelanders (Cleasby and Mallet: Mr Blackwall, note †, p. 193, attempts and fails to correct Gibbon). What possessed Mr A. Mounsey (Journal through the Caucasus and Persia) to derive "Feringi" (Frank) from Varangian?

Castle, whose approach is choked with trees like that of Baalbek, I remarked that the kitchen and the banqueting-room had false and shouldered arches, which might have been borrowed from the Haurán. We pitied poor St Magnus the Martyr for the insult lately offered to him in the shape of a wretched court-house—a similar affront has been inflicted upon York Minster. The old cathedral, grand in its rude and ponderous Norman-Gothic, is made remarkable by the red sandstone mixed with whitey-grey *calcaires*: it shares with St Mungo the honour of being the finest remains of Catholicism in the north, and it is unduly neglected by strangers. The view from that eye-sore, the stunted spire, is charming. North-west stretches the Bay of Firth, famed for oysters, backed by the dark heights of Rousay (Hrólfsey); while north-east lies Shapinshay (Hjápandisey),¹ smiling with corn and white houses, with the dark hillocks of low-lying Edey in the distance. Amongst the smaller islets may be mentioned castled Damsey (Daminsey); the Holm of Quanterness; Thieves' Holm (Thjófaholmr), where robbers, who were supposed not to swim, found a safe prison, and often, too, a long home; and the whale-back of Gairsey (Gáreksey), with the stronghold of that Sveinn (Sweyn), who lost his pirate life when attacking Dublin—the Vikings seem ever to have preferred these fragments of earth where the sea, their favourite element, was never far distant. Nearer and rising from the reniform "Mainland," *alias* Pomona, by the Sagas called Hrossey or Horse Island, is Wideford (Hvitfjörð) Hill, backed by the Oyce or Peerie Sea. The ground-wave is dark with bloomless gorse, and ruddy with fading heath, whilst higher still

"Earth clad in russet scorns the lively green."

It is a progressive country: middle-aged men have shot grouse in the mosses near Kirkwall where now the fields bear corn. The peasant's father despaired of growing grass: the son ploughs the bog, builds dry walls with the larger stones that cumber the surface, cuts deep drains, and top-dresses with sand and lime. Hands, however, are wanting; the fisheries bring more money

¹ Popularly but erroneously derived from Kolbeinsey or Kaupmannsey, "Chapman's Isle."



MAINZ - CATHEDRAL & PALACE PALATZ KURWALL.



than agriculture; and the good landlord will not part with his slow old tenantry, because he cannot replace it.

Two monuments in the cathedral are peculiarly interesting, and partly relieve the desert and dismal appearance of all Catholic places of worship converted to a "purer creed." The first is that of the Irving family, true Orcadians, who never changed their name since A.D. 1361, and one lies murdered in A.D. 1614. Mr Petrie, the discoverer, communicated with the great Washington of that ilk, who replied courteously, forwarding at the same time a presentation copy of his works. Mr Pliny Miles (Norðurfari) and others of his class are fond of claiming all distinguished names for their own country; for instance, Snorri Thorfinnsson, "the first Yankee¹ on record," is the forefather of Finn Magnússon and Thorvaldsen, whilst Captain Ericsson is the descendant of Eric the Red. It would be easier far to trace all American celebrities directly to Europe, and many of them would not be sorry to see the process thus inverted.

The second tomb, much more interesting to me than those of King Hakon and Maid Margaret, is the cenotaph of Dr Baikie, R.N., designed and inscribed, I believe, by Sir Henry Dryden: certainly both design and inscription deserve scanty credit. Not a word about the original profession of poor "Hammie," as he was called by a host of friends. And why should it be a cenotaph? Why bequeath the explorer's bones to the ignoble "European's grave," S'a Leone? Worse still, the journals, once so interesting, have been allowed to lie in obscurity for want of an editor, and a decade in these days takes away almost all the value of an African traveller's diary. Dr Baikie is supposed also to have left a valuable collection of Nigerian vocabularies—these, at least, might be forwarded to the Anthropological Institute. I can only express a hope that the bereaved family will bestir itself before the cold shade of oblivion obscures the memory of a heroic name.

After a long spell of cloudy, misty, and rainy weather, Thursday, the 12th September, broke fine, with a clear sun and a high rollicking wind which swept the rolling surface-water like a

¹ Mr Blackwall (p. 257) more modestly says the "first European."

broom. In these islands, July, August, and September are frequently wet; in October the "peerie simmer"¹ of St Martin, the Indian summer of the United States, sets in and gladdens the eye of man before the glooms of winter round off the year. Mr Petrie proposed himself as guide to Wideford Hill, Ingishowe (Howe of Inga), Maes Howe, Stennis, Borgar (Brúargarðr), and Stromness—I need hardly tell the pleasure with which his kind offer was accepted. He has not only admirably described these and other antiquities (especially in his "Notice of the Brochs, or Large Round Towers of Orkney," etc., read before the S.N.A., June 11, 1866): he has done far more important work by converting popular *insouciance*, and even ridicule, into a something of his own enthusiasm. Nor should I forget to say that in this great task he has been ably and efficiently supported by the landlord-class, amongst whom Colonel Balfour of Balfour Castle and Ternaby (Tjarnabær), the owner of Maes Howe, has especially distinguished himself. We shall now hope to have heard the last of such barbarism as breaking up the venerable "Odin's Stone" into building material. These acts are like the state of Uriconium, a national disgrace; we only wish that Jarl Hakon had Mr M——'s leg in the "Cashidawis," or "Warm Hose"—a fitting reward for those who justify the sneer—

" Quod non fecerunt Gothi
Hoc fecerunt Scoti."

It is also to be desired that the liberal proprietor of Maes Howe would take active steps to defend the highly interesting central chamber from the inclemency of the weather; the barrow was opened in July 1861, and already the interior has suffered from exposure.

The most interesting event of the day was the inspection of Maes Howe, which some one has lately suggested to be "simply a Norse fort." It would be mere impertinence to offer a general

¹ "Peerie-folk" means the fairies, both words evidently congeners of the Persian *Pari* or *Peri*. Grimm, an excellent authority, derives the French *Fée*, the Provençal *Fada*, the Spanish *Hada*, and the Italian *Fata*, from the Latin *Fatum*—remarking that *Fata* and *Fée* have the same analogy as *nata* and *née*, *amata* and *aimée*. In connection with "Simmer" or "Sea," "Peerie," meaning little, is by some deduced from the French "petit;" in the Shetlands it is further emphasised to *Peerie-weerie-winkie* (of a foal, etc.).

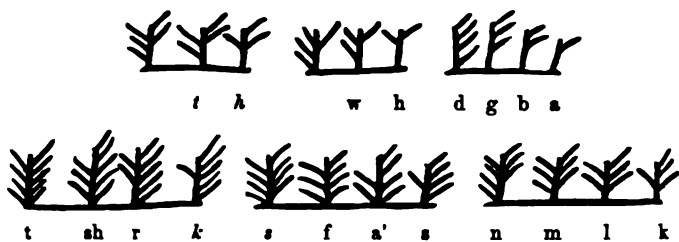
description of this unique barrow after the studies of Mr Farrer ("Notice of Runic Inscriptions discovered during Recent Excavations in the Orkneys," made by James Farrer, M.P.; printed for private circulation, 1862); lately popularised by Mr Fergusson in "Rude Stone Monuments." The three mortarless *loculi* of huge slabs and their closing stones reminded me so strongly of the mis-called "Tombs of the Kings," north of Jerusalem, that I felt once more in the "Holy Land." It is a glorious monument of the great tomb-building race, or races whose animistic creed, the essence of fetichism, expresses itself in tent-tombs (chambered cairns) and cave-tombs (rock-cut chambers) upon the Siberian steppes, the Algerian plains, the Wiltshire downs, and the Scoto-Scandinavian islands. At Maes Howe we find all its characteristics—the stone circle which drove away the profane; the long passage which keeps warm the cave or hut; the vestibule for the funeral feast, and the various rooms for the dead to live in. And at the first sight of the Branch Runes,¹ otherwise called Palm Runes, I remembered having seen a similar alphabet in northern Syria.

A ride to Hums, of old Emesa (February 27, 1871), and a visit to my old friend the Nestorian Matrán (Metropolitan) Butrus, introduced me to the alphabet known as El Mushajjar, or the branched, one of the many cyphers formerly and, for aught I know, still current amongst Semitic races. Returning to England, I sent a copy of it to the Anthropological Institute, intending to illustrate a paper which was reprinted in "Unexplored Syria" (vol. ii., Appendix, p. 241): unfortunately the copy was lost.

According to the Matrán's MS. there are two forms of El Mushajjar, one applied to Arabic, and the other to Pehlevi. Both are read from right to left, and the following is the Arabic form:

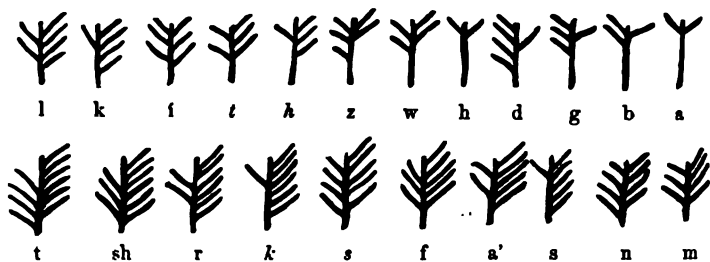
¹ The ordinary runes, I need hardly say, have been shown by Rafn to be derived from archaic Greek; and probably from coins which found their way north during the first centuries of our era.

No. I.



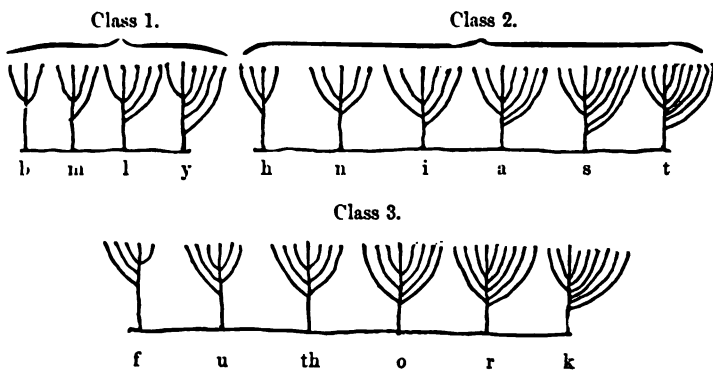
The adjoined is the Pehlevi.

No. II.



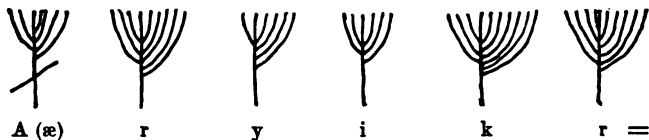
No. III. is the Norsk-Runic alphabet, read from left to right, as classified by Mr George Petrie, to decipher the palm-runes in Maes Howe.

No. III.



And the following are the inscriptions on the walls of Maes Howe:

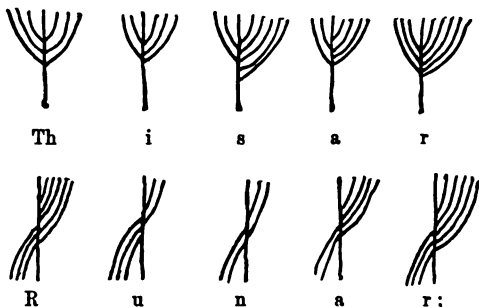
No. IV.



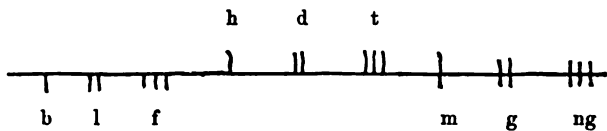
Arykr, Erikr, Eric.

The key to the cypher is here shown by the tranverse stroke on the stem of the first letter to the left (A or æ).

No. V.



forming an ineptive—"these runes." In the word "Runar," the left-hand branches are turned down by way of variety; of course the number is the same. Finally, it is interesting to compare this "Mushajjar" with a similar system, the Irish letters, which bear the names of trees. They are:



And even in the common runes, we may observe that there is only one (R) which is not composed of a rune-staff, supporting offsets disposed at various angles.

No. I., the Arabic form connected by horizontal base-lines, contains two sets of three, and four sets of four letters, read as

usual in Semitic alphabets; beginning with Alpha and ending with Tau: it is in fact the Aleph-Tav of the Hebrews and of the older Arabs, as preserved in the numeral and chronological syllabarium "El Abjad." I need hardly note that this was characteristic of the world-conquering Phœnician, that glorious gift to Greece, usually attributed to Cadmus (El Kadim, or the Ancient), and by us incongruously applied to our Aryan speech; a comparison of the sequences *a, b, c,* and *d* (Abjad), and *k, l, m,* and *n* (Kalaman) with any other system at once proves direct derivation. In the Pehlevi Mushajjar the letters, it will be seen, are not joined at the base, and sundry branches are formed in a different way.

Mr Farrer, who first "established the important fact of Runic inscriptions existing in Orkney, where none had hitherto been found," gives both sets of palm-runes (Plates VIII. and IX.). He borrows the following information (p. 29, referring to Plate VIII.) from Professor Stephens, a good Norsk scholar: "The six crypt runes or secret staves represent the letters A, Æ, R, L, I, K, R, and signify Aaligr or Erling, a proper name, or perhaps the beginning of some sentence." Professor Munch observes, "The other characters in the third line are known as 'Limouna,¹ or Bough-Runes.' They were used during the later times of the Runic period in the same manner as the Irish Ogham, but are not here intelligible. The writer probably intended to represent the chief vowels—A, E, I, O, U, Y. The Runic alphabet was divided into two classes: the strokes on the left of the vertical line indicating the class, and those on the right the rune itself." And Professor Rafn declares, "The palm-runes underneath cannot be read in the usual manner; the first, third, and fourth of the runes being *a, o,* and *i*; the writer probably intended to give all the vowels, but some of the letters have been obviously miscarried, and have perhaps been altered and defaced at a later period by other persons. In the first of these a cross line has been added to show that the letter *a* is intended." Of No. XVIII. (Plate X.), Mr Farrer notes, "The palm-runes are rarely capable of being deciphered." Professor Munch similarly declares, "The bough-

¹ Gen. Lim-rúnar (lim or limr being the limb of a tree opposed to the bole), which Cleasby explains as "a kind of magical runes."

runes are not easy to decipher;" whilst Professor Stephens asserts, "The palm-runes on the first line indicate Thisar Runar—" these runes." They are mentioned in the Elder Edda (*Sigrdrífumál*, stanza 11):

"Lim-runes thou must ken,
An thou a leech wouldst be,
And know to heal hurts."

The cryptogram, "El Mushajjar," was forwarded to Mr Petrie, who replied as follows: "I attempted by means of your tree-branched alphabet to read the palm-runes of Maes Howe, but failed. It then occurred to me that they might correspond with the Futhork, or Icelandic alphabet, and, obtaining the key of the cipher, I completely succeeded after a few hours' trial. On referring to Mr Farrer's copies of the translations given by the Scandinavian professors, I find that Professor Stephens appears to have put five runes in each of the first two classes, which makes the third palm-rune (inscription No. I.) to be L instead of F; moreover, he does not give the key. My first attempt at classifying the runes by means of the cipher turned out correct, and I have therefore retained that classification in reading the second inscription. It is evident that the classification could be altered at will of the person using it, and this uncertainty of arrangement must constitute the difficulty of interpreting such runes."

In Nos. XIX. and XX. (Plate X.) we read "Iorsafarar Brutu Orkhröugh"—the *Jórsalafarar* (Jerusalem-farers, *i.e.*, pilgrim-visitors of Jerusalem) broke open Orkhow (shelter-mound), probably in search of treasure: the latter is an object especially Eastern. There are seven crosses, and one inscription (No. XIII.) must be read from right to left. We may therefore believe that certain old *Coquillards*, and possibly Crusaders, returning from Palestine, whence they brought the "hubby,"¹ violated the tombs, and left a single name and an unfinished inscription to record their propensity² for grave-plundering.

¹ "Hubby" is a loose robe, erroneously derived, like the Scotch Joop, the German Giup, the Italian Giubba and Giubbone, the French Jupe and Jupon, and the Slav Japungia, from the Norsk Hwipu. All these are simply corruptions of the Arabic "Jubbeh."

² These Northmen left their handiwork even on the "Stones of Venice."

We visited the museum at Stromness, the amorpholites or "Standing Stones," and that "Mediterranean in miniature," the Stennis Lake, whose flora is partly marine and partly lacustrine. Hereabouts, the plain shows distinct remnants of the two great epochs—Bruna-öld, the Age of Burning; and Hauga-öld, the Age of Burial. We have no reason to believe the tradition that Odin introduced cremation; doubtless, the "crematee" was chiefly of the wealthy classes, while the poor were inhumed—they were both synchronous in the days of the Twelve Tables: "Hominem mortuum in urbe ne sepelito, neve urito." Hence a valuable rule for tracing the exact limits of old Roman cities, even of Rome herself: the cemetery was always outside the city settlement, and, if possible, to the south.

The day ended happily, as it began, in meeting Colonel Burroughs of Rousay, and Dr Rea of Arctic fame. My memories of Kirkwall are pleasant in the extreme. It wants only a good modern hotel to deserve the patronage of tourists, who, in these days, are told to "try Lapland," when they have ample inducement to pass a summer in the "storm-swept Orcades," and in other sections of the Scoto-Scandinavian archipelago.

On Friday, September 6, the "Jón Sigurðsson," Captain Müller of whom more presently, made with some difficulty the Shetland Mainland. Many derivations are offered for the latter word, but, as the island is larger than all the rest put together, the obvious signification suffices.¹ A dark, thick fog had kept us drifting all

Readers may not be unwilling to see the legend upon the maneless and melancholy lion, the statue of Pentelic marble, ten feet high, once at the harbour mouth of the Piræus (Porto Leone), where the pedestal still stands, now fronting the arsenal, Venice, where, after the retreat from Greece, the Doge Morosini carried it in 1687. The hardly legible inscription on the right side of the animal is supposed to be, "Asmundr graved these runes united with Asgeir, Thorliel, Thórd, and Ivar, at the request of Haraldr Háfi (the Tall); although the Greeks, taking thought, forbade it." It is supposed that this Harold was the same who had the promise of seven feet in English ground. The left flank and shoulder are less uncertain, and the legend reads as follows: "Hakun, united with Ulfr (Wolf) and Asmundr and Aurn (Örn), conquered this port. These men and Haraldr Háfi, on account of the uprising of the Greek people, imposed considerable fines. Dálkr remained (prisoner?) in remote regions. Egill fared with Ragnar to Rumania . . . and Armenia."

The inscriptions were first published in 1800 by Åkerblad, a Swedish savant; they have been frequently revised, and the last study is the "Inscription Runique du Pirée, interprétée par C. C. Rafn; et publiée par la Société Royale des Antiquaires du Nord," Copenhagen, 1856.

¹ The old Norsk Megin-land, land of might, or mainland, is evidently, like the

night close to the dangerous rocks called Hivda Grind, Havre de Grind, or Hardegrind, originally Nafargrind, from Grind (a hedge-gate or sea-way), and, perhaps, Höfða (a head or bluff). Our position, some seven miles E.S.E. of Foula (Fugley) Island, explained the noise of the surf and the shallowing of water to thirty-two fathoms—it is far easier in these latitudes to hear than to see the land! The raw mist obscured the bold, grand scenery of the western coast till noon, when a sickly sun sublimed the vapours, reminding me of the Malabar coast after the Nilgherry Hills. Very mild was the Roost¹ or Race of Sumburgh, a Eurippus, where nine currents are said to meet. We could distinctly sight Fitful² Head, and

“ We saw the tide
Break thundering on the rugged side
Of Sumburgh’s awful steep.”

Its flank of clay-slate showed vast rivas (clefts) and stone-slips, while beyond it lay the skeleton of Jarlshof (Earl’s house), names now world-known. It is curious to trace how the practised eye and the wonderful memory which created our modern historical novel skimmed the very cream of Hjaltland peculiarities during a few days’ visit in August 1814, the year in which he published the *Eyrbyggja Saga*;³ and it is fortunate for writing travellers that Sir Walter Scott did not visit the Færoes and Iceland. See what he did for the “Waverley Line” of Railway!

Scotch Mickle, connected with the Persian Mih or Mihin, great, powerful, but not, as Mr Blackwall conceives, with “miracle.” The classical name of the Orkney group, then numbering only seven, is *Acmodæ* in Pliny, iv. 16, and *Hæmodæ* in Mela, iii. 6. The Icelandic term is Hjaltland (pronounced *Zhaltland*), hence Zetland, Hetland, and Shetland. Thus it still preserves the fame of old Hjalti, the Viking of the ninth century, who also survives in the modern “Sholto.” Munch suggests that Hjaltland, hilt-land, may have been given from a weapon dropped in it; so trivial were the names of olden Scandinavia: he also mentions the legend of *Swordland*, a great country now submerged, between Norway and Hjaltland, its hilt.

¹ In Scandinavian, *Dynröst*, “thundering roost,” from “*að dynja*,” to din; hence the Tyne and Dvina Rivers. The Icelandic *Röst*, or current, is the French *Raz*; that of “*Petlandsfjörð*” is especially celebrated. In the Orkneys “*Roust*” is a stormy sea caused by the meeting of tides; “*Skail*” (Icel. *Skellr*) is the dashing of surf upon the shore; “*Skelder*,” the washing of waves, is a common name for farm-houses near the beach; and “*Swelchie*,” which explains its own meaning, is the Icelandic *Svelgr*.

² *Fit Fiall*, *i. e.*, “*planities pinguis*,” or, better still, *Fitfulgla Höfði*, sea-fowl cape.

³ An abstract printed in “*Illustrations of Northern Antiquities*,” one vol. 4to, Edinburgh, 1814; reprinted verbatim in “*Northern Antiquities*,” edited by Mr J. A. Blackwall, London, Bohn, 1859. In it we may note the origin of *Norna* the sibyl’s “*improvisatory and enigmatical poetry*.”

Amongst the islanders he is a household word, but though the Troils of Papa Westræ do not object to Magnus Troil, they are still incensed by the portraiture of that "fiddling, rhyming fool," poor Claud Halcro.

The approach to Bressey Sound, one of the finest ports in Great Britain, is unusually picturesque. On the right is the "Wart of Bressey"¹—verrucose features are here common as in the Orkneys, but the word is the Icelandic "Varða," and the German "Warte," a watch-house. Its flanks are gashed for turf; and a goodly lighthouse is as much wanted on the dangerous western coast as on the Mediterranean shores of Africa. The island was lately sold, they say, for £20,000. On the left is the historic Knap or Knab (Hnapp meaning a button) of quartzose slate, backed by the quarries and the spreading town of Lerwick—mud bay. The (Arthur) Anderson Institute and the Widows' Asylum reminded me of a Shetlander who began life as a clerk, became M.P. in 1847-52, and died the chairman of the great "P. & O."—it is a pity that these fine establishments were not better endowed. The capital stands with its feet in the water; the houses, with their crow-stepped gables, being so built for convenience of smuggling, and its sons fondly compare it with cities on the Rhine. Half a dozen Dutch busses, riding in couples, now represent the hundreds of bygone days, when the British fisheries were called the "gold mine of Holland." Certain features suggested modern Tiberias, but the disproportionate number of the churches soon weighed down that flight of fancy.

On the day after arrival, I set out with Captain Henry T. Ellis, R.N. (of "Hong-Kong to Manilla"), to do the tour *de rigueur*—Scalloway² Castle and Moseyaburgum, the Mousa (Mósey) Broch³

¹ Originally Brúsey, from Brúsi, a proper name.

² Skála-vegr, the way of the court-house.

³ Also written Brough, meaning a round tower. The word is usually derived from the Gothic "berga," to defend, but it has a far nobler origin. It is the Chaldee "burgadh," the Arabic "burj," the Armenian "pourc," the Greek "πύργος," and the Latin "burgus;" the Gothic "baurg," the Mæso-Gothic "bairg," and "borg," a mountain; the Scandinavian "borg," a fortress; the Armoric, Irish, and Welsh "burg," also found in Teutonic and Saxon; the Anglo-Saxon "beork" and "beorg," a rampart, and "burh" or "bureg," a castle; the Belgian "burg," the Gaelic "burg," the French "bourg," the Italian "borgo," the North British "burgh" and "burg," as Edinburgh and Corrensburg; the Scoto-Scandinavian "brogh" or "broch," with the guttural un-compounded, and

or Pecht House. We took the excellent northern road, begun during the famine, and finished some four years ago (1870): formerly when a picnic was intended, gillies were sent on to smooth the way for riders. After a few yards, we left the fertile seaboard, whose skirts and smooths are, as in Iceland, the only sites for agriculture, and entered the normal type of country, which begins in Scotland and Ireland. There can be no better description of bog and moor, of hill-land or commonty, and of "moss, mount, and wilderness, quhairin are divers great waters," than that which opens the first chapter of "Lord Kilgobbin," the last work of that most amiable and sympathetic writer, whose unworthy successor I now am: "Some one has said that almost all that Ireland possesses of picturesque beauty is to be found on or in the immediate neighbourhood of the seaboard; and if we except some brief patches of river scenery on the 'Nore' and the 'Blackwater,' and a part of Lough Erne, the assertion is not devoid of truth. The dreary expanse called the Bog of Allen, which occupies a high table-land in the centre of the island, stretches away for miles, flat, sad-coloured, and monotonous, fissured in every direction by channels of dark-tinted water, in which the very fish take the same sad colour." Similarly we read of Scotland: "The inland, the upland, the moor, the mountain, were really not occupied at all for agricultural purposes, or served only to keep the poor and their cattle from starving."

The surface of this Irish Sliabh and Icelandic Heiði, a true "black country," natural not artificial, rolls in low warty moors revetted with moss, spangled with Fífa, or cotton-grass (*Epilobium*, or *Eriophorum epistachion*), and gashed with deep black earth-cracks, showing the substrata of peat; the tarns and flowing waters are inky as the many Brazilian "Unas" (Blackwaters), and though strongly peat-flavoured, they are not unwholesome. I could not find that they had been used for tanning, nor have the people yet found out the value of the "peat-coal," macerated condensed¹ peat, so long appreciated by the Grand Trunk of

even "borve," as in Sianborve, and "burr," as in Burreness; and, finally, the English "burg" and "burgh," "borough" and "burrow." Such are a few of its titles to antiquity and extent of domain.

¹ I am well aware of the difficulties, and especially of the expense, objected to

Canada and the railways of New England and Bavaria; even in the Brazil a patent for the manufactory was taken out some years ago, and Bahia now exports the article. Yet in Lyell's "Principles of Geology" (11th edit., vol. ii, p. 504) we meet the strange assertion, "No peat found in Brazil." The supply of the bog factories near Montreal costs nine shillings to ten shillings per ton, or about one-fourth the value of pit coal. The Torbite of Horwich (Lancashire) is even cheaper, and experts have said that it gets up steam to 10 lbs. pressure in one hour ten minutes, and to 25 lbs. in one hour thirty-two minutes—the figures of Lancashire coal being two hours twenty-five minutes and three hours—at any rate, we may believe that when water is excluded, its heating power is about half way between wood and coal. Thus it becomes an article of general value to brewers, distillers, and manufacturers; and the Swedish iron, equal to Low Moor, as well as the yield of the Bavarian, the Wurtemberg, and the Bohemian mines, are all treated with condensed peat. It is now time to utilise the vast bogs of the finest deep black fuel, in which Ireland and the Hebrides, the Shetlands and the Orkneys abound, especially when perpetual colliery strikes, causing coal famines and the immense rise in the value of the combustible, have made steamers lie idle in our ports. Truly Torf-Einarr Jarl, who first taught the art and mystery of "yarpha"-burning, deserves a memorial statue on the Torf-nes.

In such "sea-girdled peat-mosses" as these, agriculture is a farce, and only sheep can pay. The foundation of the rocks, snowy quartz veining grey and chloritic slate, is that of Minas Geraes, and yet crushing for gold has not, we were assured, been attempted. Dr Cowie informed me that copper and iron are now successfully worked near Sandwich; and I hope soon to hear of prospecting for the nobler metal. At present our

condensing peat. But peat *au naturel* can be burnt as the *mottes* in France and Holland have been used for generations. And I am also aware of the immense interests wielded by the Coal League—surely these must sooner or later succumb to the public good. Lands without coal leagues find no difficulty in the operation. The two companies lately established at Oldenburg use a large flat-bottomed steamer, which opens a canal 20 feet broad and 6 deep at the rate of 10 to 12 feet per hour: the soil is heaped up on the banks, and is cut into brick-shape, after which mere drying makes it fit for fuel.

African California, the Gold Coast itself, is not more thoroughly neglected.¹

Shetland life is concentrated near the sounds and voes (the Vogr of Iceland), where the dykes of Galway and Roscommon, dry or mortared walls, enclose yellow fields of oats, barley, and potatoes black with frost. Churches, and manses bigger than the churches; kilns burning kelp and lime; substantial houses, thatched with barley-straw, upon "pones," or slabs of dried turf, the whole kept in place by "simmins" (straw ropes), stones, and logs, dotted the lowlands. Here and there stood a few willows and maple-planes, erroneously called sycamores,² under the shelter of walls; and uncommonly pleasant after Iceland was the twitter of the birdies. Many broken and unroofed cottages, some of them leper-houses in bygone days, reminded us that the disease lingered longer in Scotland than in England; in the Scoto-Scandinavian islands than in Scotland; and in Iceland than in the "Eyjar." The frequent ruined home-steads of small tenantry, compelled, when their land was "laid down to grazing," to seek their fortunes elsewhere, are the salient features. The "murid" (murret) coloured Shetland sheep have now made way for Scotch intruders; the cattle are from Ayrshire; and English horses, not "cussers from Lanarkshire," have taken the place of shelties. Ducks and geese are everywhere; skarfs and gulls are more numerous than the speckled cocks and hens; and salt-fish, which here is not sun-dried, lies piled, as in Iceland, upon the sands.

Much has been said in books³ about the physical beauty of the Shetlanders, but neither of us could see it. There is a greater

¹ After Australian diggers had asserted for years that gold would be found in Bute, a specimen was lately (1874) extracted from a vein of quartz which runs out into the sea below the Skeoch plantation.

² Jerome Cardan, travelling in Scotland (1552), remarked the popular fondness for the *Platanus*, and explains it thus: "I think they take a special delight in that tree, because its foliage is so like vine leaves. . . . 'Tis like lovers, who delight in portraits when they can't have the original." Colonel Yule (*Geograph. Mag.*, Sept. 1, 1874) asks whether these trees were the real plane (*P. Orientalis*) or the maple (*Acer pseudo-platanus*), commonly but erroneously so called in Scotland, and still more erroneously in England, "Sycamore." Hence also, he observes, by propagation of error Eastern travellers translate the Persian "Chínár" (*Platanus*) by Sycamore.

³ Especially "Shetland," etc., by Robert Cowie, M.A., M.D. Edinburgh: Menzies, 1871. Will the author allow me to suggest that in his next edition of this valu-

variety of race than in the islands farther north, but less, as might be expected, than in the Orkneys and Caithness. The blue eyes are milder than in Iceland, the long bright locks are the same, but the complexion is by no means so "pearl and pink"—perhaps its muddiness may result from peat-water. The blondes, as a rule, wear that faded and colourless aspect which especially distinguishes the Slav race. The look is shy and reserved, and the voice is almost a whisper, as if the speaker were continually nervous: strangers notice this peculiarity even in society. *En revanche*, the women appear to be peculiarly industrious. They crowd Commercial Street during the Monday markets, and even when carrying their heavy "cassies," "cassie-cazzies," or crates of peat, which serve for "Ronin the Bee," they spin yarn and knit "tree-ply stockings," apparently not intended for their own naked feet. The Wadmél, or Wadmaal, the North of England Woadmél, here better known as "Shetland claith," cannot, however, compare with that of Iceland; the texture is loose, and the stuff in the shops is evidently meant to sell, not to last.

After seeing the humble wonders of Scalloway Castle, we struck southwards and across the Mainland, where we could hire a boat for the Whalesback of Mousa. The leek-shaped Broch has a pair of romantic legends attached to it, but they are too modern for interest. This most perfect specimen of the seventy round towers¹ has been often described, but no one seems to have noticed the similarity of the double walls of the vaulted and many-storied bee-hive chambers, and of the other peculiarities, with those of the pre-historic Sardinian Nurhágghi. The "stepped domes" of dry stone, and the "concealments,"

able work—an exceptional guide-book, amusing as well as instructing—the medical part from page 56 to page 88, and especially Chapter XIV., should be placed in an appendix? At present it reminds me of a volume which I read with the liveliest interest, "The Luck of Roaring Camp," regretting only that the order of the tales had not been systematically reversed. Dr Cowie has been kind enough, at my request, to draw up an account of the pre-historic collection at Lerwick, which will be found in the note at the end of this chapter.

Since these lines were written, the papers have informed me that Dr Cowie, after printing a second edition of his admirable guide-book, has passed from this world when in the prime of manhood.

¹ The number of these places of refuge shows the Shetlands in proto-historical times to have been densely peopled. I have made the same remark about the Istrian Castellieri.

also reminded me much of similar features in outlying Syria. Some ill-conditioned party of "cheap-trippers," or "devil's-dust tourists," has lately fired the secular moss which clothed the south-western wall. On the way back to Lerwick there is another ruin in Clickamin (also written Chickhamin) Lake: interesting as the means of comparison, it has an addition evidently more modern of extensive outworks, which Mousa Castle wholly wants.

Unfortunately for myself, I had not time to call upon the late Mr Thomas Edmonston of Bunes, whose philological labours are so valuable to northern students;¹ and to tell unpleasant truth, I was somewhat surprised by the success of the nineteenth century in abolishing all the old hospitality. We inspected the contents of the dark little room, the anthropological collection of the Shetlands, which deserves a catalogue, and other comforts of civilised life. Many Hjaltlanders have never heard of it. The most interesting articles are the steatite pots from Unst, and the ceramic remains, guiltless of wheel, collected in the Brochs. There are also some rough "thunderbolts"—here the stone celt is considered, as by the ancient Greeks, to be an *ἀστροπελέκυσ*. Hence Claudian (fifth century) sings:

"Pyrenæisque sub antris
Ignea fluminæ legere ceraunia nympha."

We ran into Thorshafn (Færoes) on September 4, when a shower of rain had laid the fog. The "Isles of Sheep," others say of "Feathers," are evidently built like Iceland, with submarine trap; and the deep narrow "grips" between them, passages free from any danger except the "vortices,"² which can be seen, suggest that they have parted into long narrow fragments under the influence of subaërial cooling and contraction. The deep black strata appear peculiarly regular, as those of the western Fjörðs of Thule, streaked with lines of red ochre, spotted with white guano, and not showing, in this part at least, any signs of Palagonite or sea-sand. The leaf-shaped valleys,

¹ Etymological Glossary of the Shetland and Orkney Dialects, by Thomas Edmonston. Edinburgh, 1866.

² Hence the name of Malestrom or Moakoestrom.

the water-falls, and the natural arches, are familiar to us after "Snowland;" the shallow turf lies upon the steepest incline, and not unfrequently it is torn off by the frantic wind with as much ease as a rug is rolled up.

The course lay abreast of Mygganaes (Midge Naze),¹ with its head to the south, and projecting a long low tail cut by a "coupé," like that of Sark. We then opened Waagoe (voe ialet), so called because imbedded in the greater Stromoe. At the southern end, where once whales abounded, as may be seen in prints of 1844, many "Battles of the Summer Islands" were fiercely waged. We pass Gaasholm, Tind-holm, or Peak Island, a slice of rock with jagged uplifted edge, here a common feature, the Koltar (Coulter), which passably represents its name, and Hestoe the horse-eyot. The latter is a common Scandinavian name for a feature with a long straight dorsum, ready as it were for the saddle—witness the Horse of "Copinshay" (Kolbeins-ey): the hunchbacks are mostly called "hogs," and the smaller outliers "calves." The normal shape is a quoin, bluff to north or east, and sloping with a regular green incline to the water. There is no snow; the hay crop has been got in, and the settlements are villages, not Bærs or detached farms. We ran within easy sight of Kirkjubæ, which stands well out from its adjacent hovels; it is the last Roman Catholic building in the islands, and the "Reformation" left its sturdy walls unroofed. Visitors speak of an iron plate imbedded in its masonry, and supposed to denote treasure, which is not likely. The old Church still keeps up a mission-house and chapel at Thorshafn, but we found the building void of priests.

Whilst the "haaf," or outer sea, was calm as a lake, a cold and furious southerly wind, the gift of the funnel between Sandoe and Stromoe, blew in our faces, and when we had turned the southern point of the latter, it again met us from the north-east.

¹ "Lappmark's land-plague," says Mr Shairp, author of "Up in North" (London: Chapman & Hall, 1872), is of three kinds:

1. Mygg, or long nose (*Culex pipiens*), the wretch of stinging bite and blasphemous song.
2. Knott (*C. reptans*), a villain that keeps close to the ground, and avoids horses.
3. Hya or Gnadd (*C. pulicaris*), the smallest of the family, but when it "sticks," as the Swedes say, violent itching is the result.



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KIRKJUBÆ RUINS IN FÆROE ISLANDS



The capital Thorshavn is a small heap of houses, or rather boxes strewn "promiscuous" on the ground, and a large white church, whose belfry is adorned with a gilt ball and a profusion of crosses. It has, however, a literary dean, and, better still, a library. The site of the settlement is a spit of rock dividing the harbour into a northern and a southern "hop"—the latter being generally preferred. A green flag floating over a shed near the fort denotes the quarantine station; planked boat-houses figure conspicuously, and the roofs are more grassy even than in Iceland. Willows, elder-trees, and currant-bushes, looking gigantic after the stunted vegetation farther north, flourish in sheltered spots, especially near the well-bridged brook in the southern part of the city. Along the dorsum of the spit runs an upper road with a small central square, looking as if a single house had been pulled down to make room. Huge boulders have not disappeared from the thoroughfares, and the latter are the most crooked and irregular of any that claim to be in Europe; narrow, steep, and steppy—narrower than Malta, steeper than ramps at "Gib," and steppy like Dalmatian towns, for instance Curzola and Lésina: in places they are supplied with hand-rails.

The people are remarkably English in appearance, and perhaps an easy reason may be found for the resemblance. They appear rather shy than the reverse, and they notably lack Hazlitt's "Scotch stare." The women show the bloom of infinite delicacy that characterises the complexion of Iceland. The men, who unwisely shave their faces, still affect the picturesque island-dress, a peculiar-shaped cap of dark colour with thin blue or red stripes, long brown jacket, knee breeches of Wadmal, long stockings, and untanned spartelles, or "chumpers," the wooden-soled clogs of "Lankyshire."

We called on Hr Sysselmand Müller, and we left the Færoes with a conviction that its capital is one of the "slowest" places now in existence: the only possible excitement would be to buy a 560-fathom "fowl-rope,"¹ and to dangle like the samphire-gatherer of dreadful trade over the bird-precipices. "In a rope's

¹ The fowl rope contained sixteen ox hides, and the seven pieces each measured eighty fathoms. Early in the present century it cost only \$10.

end between earth and heaven, with the blue sky above you, and below you the still bluer sea tumbling, between which two you swing to and fro like a pendulum," one might secure a novel sensation to take the place of many an *illusion perdue*. A St Bartholomew's Day of a hundred and fifty whales, a massacre headed by the parson and the schoolmaster, must also have its charms, but these events are unhappily waxing rare.

NOTE ON STONE IMPLEMENTS AND OTHER PRE-HISTORIC REMAINS FOUND IN THE SHETLAND ISLANDS. BY THE LATE ROBERT COWIE, M.A., M.D.

Of the pre-historic weapons of warfare, or implements of domestic economy, which have been found in the Shetland Islands, by far the most numerous and important are the stone implements. These naturally divide themselves into two classes, viz., the *polished* and the *rude*. First let us speak of the polished stone implement, celt, steinbarte, battle-axe head, or "thunderbolt." This implement has, for centuries, been an object of search, not only for the antiquary and the collector of curiosities, but for the native peasantry—the latter class regarding it with superstitious awe, as a sort of household god, who brings luck to the family that is fortunate enough to possess it. They term it the "thunderbolt," from a belief—everywhere found and dating from all times—that the weapon has come down from the sky during a thunderstorm. These "celts," or steinbartes, as they are generally termed in scientific language, again divide themselves into two varieties, viz. (1.) the single-edged steinbarte and (2.) the double-edged steinbarte.

1. The single-edged steinbarte, which is by far the most common, is thus very accurately described by Dr Hibbert, in his excellent work on Shetland: "This variety of blade has one cutting edge, generally of a semilunar outline, and tapering from opposite points to a blunted extremity or heel. In some specimens both sides are convex; in others one side only, the

other being flattened. All the edges except the broad sharpened margin are bluntly rounded off. The single-edged stone-axes of Shetland vary much in their dimensions, being from four to eight or ten inches in length; their breadth proportionately differing. When the Shetland steinbarte was used in war, its blunt tapering extremity may be supposed to have been introduced within the perforation made into some wooden or bone haft, and afterwards secured by overlapping cords, formed of thongs of leather, or the entrails of some animal; twine of hemp not being then in use."

From considerable personal observation, I can testify to the accuracy of the above description, except that there appears to be in these instruments greater variety in size than that indicated by the learned Doctor; the largest single-headed steinbarte in the Lerwick Museum being $14\frac{1}{2}$ inches long by $4\frac{1}{2}$ inches at the broadest point, and the smallest $4\frac{1}{2}$ inches long by $2\frac{1}{2}$ inches at the broadest point.

Continuing the paragraph just quoted, Dr Hibbert says: "Another kind of steinbarte has been said to occur in Shetland, the sharp edge of which describes the segment of a circle, whilst the chord of the outline is thickened like the back of a knife. Probably its blunt edge was fixed within the groove of a wooden or bone handle, so as to form a single-edged cutting instrument." This peculiar variety must have been very rare indeed, for no one appears to have seen it since the days of the Rev. Mr Low of Orkney, who wrote exactly a century ago.

2. The double-edged steinbarte is described as follows by Dr Hibbert: "The blade of this instrument is a stone completely flattened on each of its sides, and not more than the tenth of an inch thick; it is of an oblong shape, having one blunted margin perfectly straight, and, with the stone in such a position that the dull edge is the uppermost, we have the form of a blade presented, in which the two narrow edges are irregularly rounded off at their angles, so that one edge is much broader than the other. Every part of the margin but that which constitutes the summit of the outline is sharpened; by which means there is a great addition made to the extent of the cutting edge. The blade is $5\frac{1}{2}$ inches long, and from 3 to 4 broad." This descrip-

tion does not correspond with the specimens I have been able to examine. If they are to be considered fair specimens, I would describe the so-called double-edged steinbarte thus: An oblong flat piece of porphyry, serpentine, or some similar stone, 5 or 6 inches long by 4 or 5 broad, and about a third or a fourth of an inch thick, with a thin sharp edge all round.

These instruments, many of which are very beautiful both as regards form and polish, are generally formed of a peculiarly compact green porphyry or of serpentine. They have been found in most of the districts of Shetland, particularly in the parishes of Unst, Delting, Wells, and Sandsting. The situations and numbers in which they have been found, also present great variety. Some have been taken out of ancient stone coffins, others found inside of or near to old "burghs," while many have been dug up in the common—some near the surface and others several feet beneath it.¹ Most of them have been found singly, but in many instances large collections of such weapons have been discovered. Thus, in one instance, twenty-four of them were found in one spot, in another eight, and in a third seven, the last-mentioned series being arranged in the form of a circle.

Polished stones having the shape of spear-heads have also been found in Shetland, but very rarely. They are said to be about four inches long, having a groove apparently for receiving a wooden shaft.

Flint arrow-heads, although frequently dug up in Orkney, have not yet, as far as I can learn, been found in Shetland.

2. THE RUDE STONE IMPLEMENTS.

While the polished archaic stone implements have been known during a long period of modern history, the rude or unpolished have only very recently been discovered, or at all events recognised; and for this discovery we are chiefly indebted to the late Dr James Hunt, London; Dr Arthur Mitchell, Edinburgh; and Mr George Petrie, Kirkwall, who conducted archæo-

¹ One of those in the Lerwick Museum was taken out of the peat-moss six feet beneath the surface.

logical explorations in Shetland in the summer of 1865. Vast quantities of such articles must from time to time have been turned up by the peasantry; but it is only about this period they appear to have been recognised—a circumstance somewhat curious considering the many searches during a long series of years, made for relics of pre-historic times, by various accomplished antiquaries. These rough instruments present great variety both as to shape and size. Let us endeavour to indicate the chief types.

1. We have the club-like form, which is well illustrated by the accompanying copies of Dr Mitchell's excellent paper on

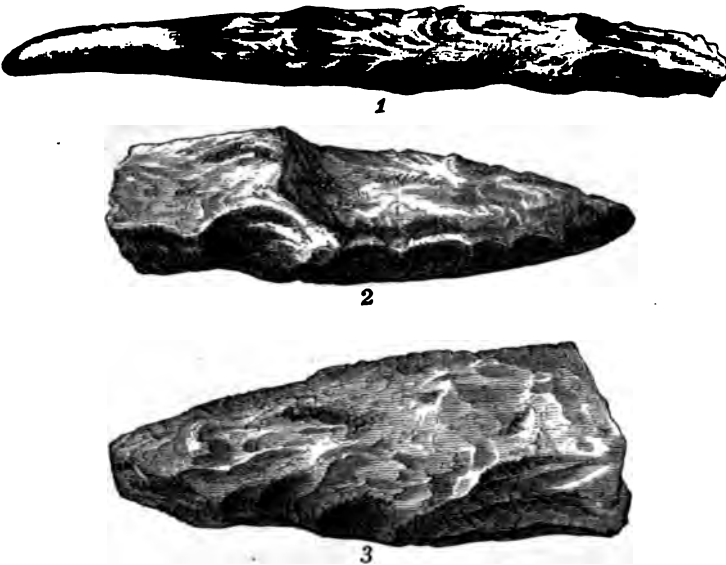


Fig. 1.—Stone Implements found in Shetland.

the subject.¹ This implement is generally of large size; one specimen measuring 21 inches by $2\frac{1}{2}$ inches at the greatest breadth, and weighing $6\frac{3}{4}$ lbs.; another is 20 inches long, 5 or 6 in diameter, but attains the great weight of 14 lbs. Many of

¹ On some Remarkable Discoveries of Rude Stone Implements in Shetland, by Arthur Mitchell, F.S.A., from Proceedings of the Society of Antiquaries of Scotland, vol. vii., 1866-67.

the small forms found in the collections to be described appear to be fragments of this larger implement.

2. Next in importance comes a long, narrow, flattish stone—“from 11 inches by 3 inches, to 6 inches by $1\frac{1}{4}$ —thinned and

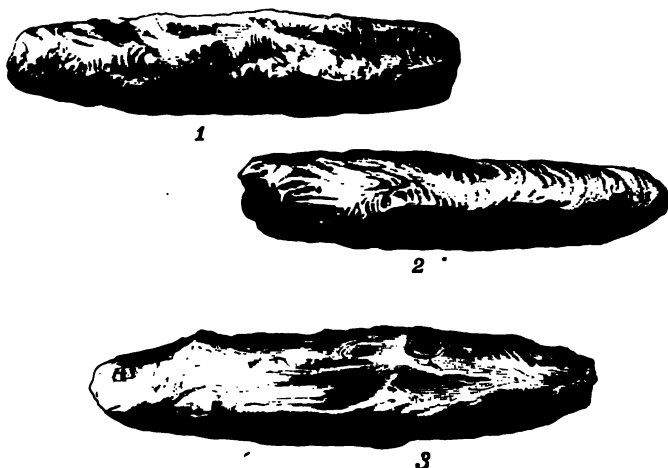


Fig. 2.

somewhat rounded at each end.” Stones of this variety, which are very numerous in the collections already made, present a remarkable similarity. (See Fig. 2.)

(3.) The third type, which is illustrated by Fig. 3, is “a broad,

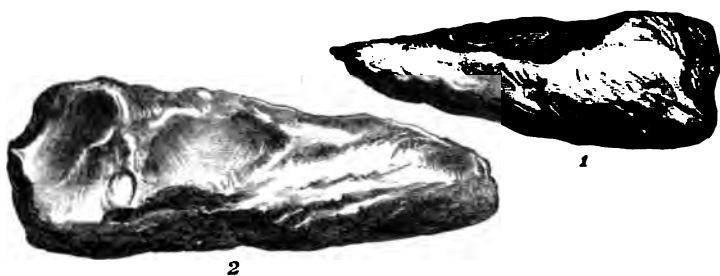


Fig. 3.

flat stone, showing a tendency to be pointed at one end.” Dr Mitchell considers most of these stones fragments of larger

implements; but two entire specimens of this type are to be found in a good collection made by Mr Umphray, of Raewick Shetland. The great majority of the rude stone implements found in Shetland belong to one or other of the types above briefly noticed; but we have still one or two less common varieties.

(4.) The fourth type, of which I have not been able to see a specimen, is described by Dr Mitchell as "a water-worn stone,

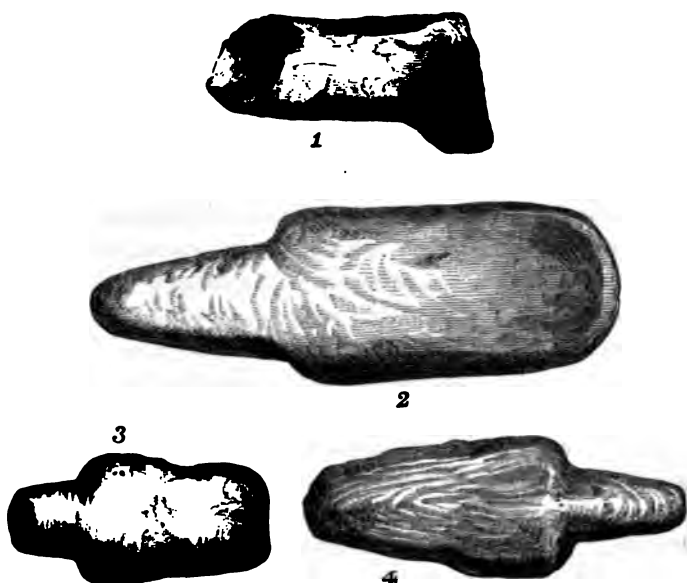


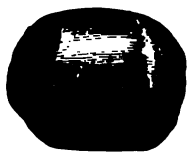
Fig. 4.

10 to 12 inches long, more or less cylindrical, but tapering at the ends."

(5.) The fifth variety, illustrated by Fig. 4, is a curious and very interesting spud-like instrument, of which only a few specimens have been yet found.

We next have three or four very rare and exceptionable varieties. The first of these is a cylindrical and apparently water-shaped stone, well worn at each end, as if it had been used as a pestle in crushing corn, or for some such domestic

purpose (Fig. 5); the second a "flat, four-sided stone, 5 inches long, 3 inches wide, and $1\frac{1}{4}$ inches thick," with a groove on each



1
Fig. 5.



2
Fig. 6.

of the long sides, so as to give it a constricted appearance; and the third a piece of sandstone, or some such stone, with an oval cup-like hollow in it.

These curious implements, thus briefly enumerated, have been found in various districts of Shetland, notably in the parishes of Sandsting, Walls, Dunrossness, and Unst. It is interesting to note the different positions in which they have been found—*e.g.*, (1.) On the surface of the ground; (2.) in curious subterranean structures; (3.) in the heart of a large tumulus; (4.) on the outside of stone coffins with urns in them; and (5.) in the inside of a Kistvaen with a skeleton and a well-polished celt.¹

Most of them are composed of sandstone, but a few of clay slate, or of micaceous schist. They apparently have been shaped chiefly by flaking, but in some instances also by picking.

In connection with these archaic implements, three questions naturally arise: By *whom*, *when*, and *for what purpose* were they formed? Were I able, this is not the place to discuss such difficult and important questions. On excavating "burghs" and opening tumuli, such pre-historic remains as fragments of rude pottery, pieces of charred wood, and teeth and broken pieces of bones of animals, are frequently discovered.

LERWICK, ZETLAND, 24th March 1873.

¹ Dr Mitchell, paper *supra cit.*

CHAPTER II.

THE LANDFALL—FISHING FLEET—TO REYKJAVIK.

AFTER this interlude of Hysteron-proteron, we return to the steamer "Queen," which has pertinaciously bored through

"The Pentland, where the furious tide,
Runs white for many a mile."

After sighting Cape Wrath, she bade adieu to "Earth's proudest Isle," and dashed north-west into the Deucalidian or Deucalidonian Ocean, the *Mare Pigrum* of the classics, the sea which Adam of Bremen terms *jecoreum et pulmoneum*, because it has a heavy motion like those troubled with asthma, in the same sense as Plautus speaks of asthmatic legs—"pedibus pulmoneis mihi advenisti." The Germans called it *Libersé* (Adam Bremensis) and complained that the abnormal quantity of salt made it a *Mare Mortuum*. Hence Hoffman von Fallersleben sings:

"De lebirmere
Ein mere ist giliberot
In demo wentilmere westerot
Só der starche Wint
Giwirffit die Skef in den Sint," etc.

The portentous waves remarked by old Icelandic sailors between Iceland and America, are termed by them *Haf-girðingar*, or *Sea-fens*, and the Polar wastes between Norway and Greenland were known as *Haf-botnar* (deep-sea bay) and *Trölla-botnar*, because here was the abode of Tröll-carl and Titan. The mighty breakers of the North Atlantic are known to picturesque and poetical tourists, not to seamen, as "Spanish waves." The sky, before clear, was all cirrus and cirro-cumulus, and the slaty green seas made the too lively "Queen" dance and reel with excitement. The cabin table was put into its straightest waistcoat,

and men avoided the deck—on shipboard, as in maritime Iceland, once wet, you cannot dry again. Our numbers shrank at mess, and the passengers seemed to become like the royal and feminine Legs of Spain. Ghostly sounds issued from the cabin; one “Caledonian stern and wild,” attached to a black dog, big as a donkey and hairy as a bear, made fierce attempts to violate the toilette tables and glared hideously at expostulation. Our only consorts were spiriting whales and audacious troops of numerous gulls—these escorted us with sundry reliefs of guard as far as Iceland.

Presently we sighted the “Stack,” a split rock with a bald white head, and further to starboard the Bird Skerry, a low dome wholly unprovided with lighthouse—how many a good ship, densely be-fogged, has run her bows upon this Rock of Death, and melted away in the yeasty waves! At 6.30 P.M., we passed the “two solitary islands,” Ronan and Barra, *alias* Sulisker, of old Sulnasker, north-easternmost outliers of the Hebrides. The former appears in hay-cock shape, the latter is a long flat-backed “horse,” bluff as usual to the north, with a precipice 300 feet high. Both are uninhabited, and might serve for fancy eremites. To starboard rises Fair Isle, half-way between the Orkneys and the Shetlands, once belonging to the former, now to the latter. This rock supplies the shops of Lerwick and Kirkwall with its peculiar hosiery; and the primary colours, blue, red, and yellow, of the Etruscan tombs, and the Temple of Ephesian Diana,¹ are those which Algiers, Morocco, and the East, still know so well to blend. Mixed in the most daring way they are never inharmonious, glaring, and grotesque. It is well worth the artist’s time and trouble to investigate and determine the delicate differences of proportion which can make the “Devil’s livery” so brilliant and pleasing to the eye. “Ye Yle of Fare,” I need hardly note, is supposed to have derived its art from the shipwrecked seamen of the Spanish Armada. “Insula Bella,” says Buchanan; of which Brand remarks, “I neither did

¹ At Ephesus blue formed the background of enrichments and sculpture in relief, whilst brilliant reds and yellows were applied to the parts requiring greater prominence. The idea that red, green, and blue, are primitives, with yellow, sea-green, and pink for complements, is very modern and rather startling.

see, nor was I informed of anything that affords us any reason why this isle should be so appellatively taken and denominated *bella* or fair." The Scandinavian name is Friðarey; otherwise we might believe Fair Isle to be a congener of "Færoes," from Fier, feathers, or from Fær, a sheep, because *plena innumerabilibus ovibus*" (Dicuil).

June 6.

Still, as the weather waxed fouler, the aneroids rose higher and higher. We had exchanged an angry Auster, which filled the raw air with damp, for a wrathier Boreas that tore the clouds to tatters. All the northerly winds, which rarely outlast the fortnight in this capricious and treacherous climate, are cold and dry, consequently heavy, whilst those from the rain-bringing south notably want pressure. We are now approaching the region of paradoxes, a practical joke of Nature, where the Rule of Reverse seems generally to apply. Travellers tell us that presently we shall see nine suns, which do not give the light and warmth of one; sub-glacial volcanoes; fire issuing from icebergs—is this not a dream of old Uno Von Troil?¹—a summer without thunder which is confined to winter; stone crumbling soft under the touch; stalactites and stalagmites of lava, not of lime, Pluto doing Neptune's work; rivers now bone-dry, then raging floods; forests sans trees; fuel thrown up by the furious sea; deep swamps clothing the high hill-slopes; lakes supplying ocean cod; and wild ducks swimming the almost boiling springs; a land where the men draw and carry water, and a population which, thriving in the worst weather, sickens and dies of malignant catarrh (the Kruym of the Færoes) when the heavens deign to bestow a rare smile.

Our only *passe-temps* is that of calculating successive positions on the chart. There to starboard lies Foula, which some write Fowla and Foulah, and is evidently Fogla- or Fugla-ey,² fowl's

¹ He attributes (p. 49) the fire to crushed driftwood, but Adam of Bremen declares the ice to be so dry that it can burn.

² The Icelandic "fugl" is especially applied to the gull. "Fowl-isle" amongst the Scandinavians meant an isolated rock lying far out to sea, and supposed to represent a bird swimming.

or gull's eyot. The claims of the "stately headland" to represent

"Thule, the period of cosmographic,"

have been discussed in another place. It belongs to Dr Scott (R.N.) of Melby; it numbers about two hundred souls, and it rejoices in a revenue of some £200 per annum—when fishing and crops are favourable. Like other islands, it has its magic carbuncle. Beyond it lies Papa Stour; Papey, the eyot of Culdees and anchorites: its natural arch will appear familiar after Iceland. About noon we found ourselves off the Færoes, and the rest of the day was spent upon the Ferry of the Northern Sea. We steam all unconscious over the "Sunken Land of Bus," in N. lat. $58^{\circ} 2'$ and long. $29^{\circ} 55'$; "Arctis," a continent which has lately been revived, and whose fragments are supposed to be Iceland, the Færoes, Greenland, Spitzbergen, and Franz-Josef's Land. This is a restoration, or rehabilitation, of Unger's Miocene Atlantis, which imitates Bailly's "in having taught us everything but its own name and existence." Older hydrographic books assure us that the western coast once "occupied many leagues of extent, but that after being overflowed, it is now not more than a league round when the sea is high. There was some years ago a large island named Finsland here, which was full a hundred leagues in circumference, and on which were many villages." Similarly, Brasil Rock ("Hy Brazile") was placed in N. lat. $57^{\circ} 10'$ and long. 16° : we have also the submerged land of Lionnesse (Leonnais) extending to the Scilly group and the drowned city of Ys, for which mass was recited till the beginning of the present century; the island of St Brandan, the Masculine and Feminine Islands, the island Scoria with its archbishop, and the island Antillia with the "Septem Cidade," mythical features, spawns of the old "Atlantis." Hr Thorsteinsson of Reykjavik showed me the origin of Finsland, more generally called Friesland, upon a fragment of vellum chart, dating from the sixteenth or seventeenth century, almost "rotten with age," and ignobly converted into a book-cover. Evidently the "Isola Frislanda" of Messer Antonio Zeno, in A.D. 1380, is a mere clerical or cartographic error for the Færoes appearing in the shape of a large tract of ground close to and south-west of Iceland. Every map of the period supports its existence.

June 7.

As we approach Snow-land the north wind seems to fall, or rather, to judge from the cirrous sky, it blows high overhead. Sailors in these northern seas believe that after passing beyond the "roaring Sixties" they begin to sail "under the wind." In other words, they hold that the Polar current, rushing to supply the ascending atmosphere established by solar action at the equator, and forming the upper trades, describes an arc which touches the earth about lat. 60°; whilst in the higher latitudes of both hemispheres, the greatest force of the draught is high overhead. So, on the summit of Tenerife, we stand in a perpetual gale of upper trades, which farther north sinks to the sea surface and overflows Europe.

Our situation was none of the most pleasant. An English vessel, also unprovided with pilot and skilful crew, has lately been wrecked upon the dangerous and inhospitable southern coast of Iceland. The clammy fog enwrapping us like a wet blanket, made altitudes hopeless; the magnet is here bewitched, seeming as if it forgot the pole; the old English hydrographic charts used on board our ships are poor compared with the French and the Danish; and we might have been drifted eastward or westward under the influence of unstudied currents. We crossed the bows of a big-sterned brig, but as she could not exchange a word with us, we "Queens" could only say bitterly,

"Barbarus hic ego sum, quia non intelligor illis!"

Under the circumstances we envied Vikingr Floki his consecrated ravens, birds which, since the days of Genesis, are always supposed to make for the nearest land. Perhaps I should say before, as the "croaker"¹ has lately appeared in the mythical seven days' deluge, related by Sisit (Xisuthrus), and was a very cannibal from the beginning, as well as a bird of augury and

¹ Raven—old German, Hraban; modern, Rabe; Icel. Hrafn (*pron.* Hrabn); Anglo-Saxon, Hræfn; Dan. Ravn; and Slav. Vran—is derived (says Max Müller, "Science of Languages," Longmans, 1862) from the Sanskrit Rn or Krn, "to cry," whence "raucus," and other kindred words. Like the pigeon, the genus *Corvus* (*Corax* and *Cornix*) crops up in all mythology, even where least expected; witness the Hierocorax of Mithras and the marvellous changes by which Apollo and Athene became crows.

sagacity. Sir William Thompson has thus ably discussed the question of raven *versus* magnet: "We have no certain information of the directive tendency of the natural magnet being known earlier than the middle or end of the eleventh century (in Europe, of course). . . . That it was known at this date and its practical value recognised, is shown by a passage from an Icelandic historian, quoted by Hanstien in his treatise of Terrestrial Magnetism. In this extract an expedition from Norway to Iceland in the year 868 is described; and it is stated that three ravens were taken as guides, for, adds the historian, 'in those times seamen had no loadstone¹ in the northern countries.' This history was written about the year A.D. 1068, and the allusion I have quoted obviously shows that the author was aware of natural magnets having been employed as a compass. At the same time it fixes a limit of the discovery in northern countries. We find no mention of artificial magnets being so employed or even known till about a century later. In a curious old French volume by Givot de Provence, of which the MS. is in the Royal Library at Paris, there occurs the following very interesting passage, which is the first allusion extant to the use of needles in place of the natural magnets for the compass: 'This same (*i.e.*, the Polar star) does not move, and mariners have an art which cannot deceive by the virtue of the magnet, an ugly brown stone to which iron *adheres of its own accord*. When they look for the right point, and when they have touched a needle on it, and fixed the needle on a piece of straw lengthwise in the middle, and the straw keeps it above, then the point turns just against the star undoubtedly. When the sea is dark and gloomy that you can see neither star nor moon, then they bring a light to the needle, can they not then assure themselves of the position of the star towards the point? By such means the mariner is enabled to keep the proper course; this is an art which cannot deceive.' This passage shows clearly that magnetised needles were actually employed for nautical purposes as they are at present in the twelfth century." This interesting quotation

¹ The very word is Norsk, "leiðar- (Anglo-Saxon, lād) steinn," not "lapis viz." but leading stone (að leiða), or lode-stone; like lode-star and lodesman, "a pilot." It is also called Sólar-steinn, or "sun-stone."

concerning the *Marinière* or *La Grenouille*, was obligingly sent to me by Principal D. M'Farlane of Glasgow.

About one P.M. the sea became unaccountably smooth, and as the wind drew round to the north, we judged that we were under the lee of the land. Presently it was whispered that a white gleam of shore had appeared and disappeared over the weather-bow, and that we were running into shallow water, rendering lead more necessary than look-out, whilst upon all ears fell ominous sounds :

" the surf that sings,
The bar that thunders, the shale that rings."

The fog suggested the old traveller's description, " subito collapsi sumus in illam tenebrosam ridentis oceani caliginem, quæ vix oculis penetrari valeret;" and the sea became a "mare tenebrosum" of the most repulsive aspect. We had intended to make our landfall at the southernmost extremity of Iceland, Portland Head, some forty-five miles to the west. But at six P.M. the water, blackened by the uliginous discharge of an unknown stream, and the dimly-seen pale-grey breakers furiously lashing the low-lying strand, and blurring it with water-dust, told us where we were. Immediately in front of us lay the carse, or alluvial lands, the *déblai* of those scarped walls that first issued from the deep: here begins what is technically called the *Siða*, "side," or sea-shore, the long narrow strip of habitable land between the mountains and the beach. Its western limit is the river *Kuðafjót*: this, the broadest in the isle, and ridiculously termed "Nile of Iceland," derives its name from *Kúði*,¹ the little Norwegian boats which ascended it in the olden day.

We now ran cautiously westward. The southern shore, harbourless as the corresponding part of Sicily, has in many parts, like Norway, two coasts, an inner and an outer; the latter composed of reefs and islands, and somewhat resembling the true or old, and the false or new, shores of tropical Africa, for instance, about Dahome and the Slave Coast. Slowly rose on high, towering through the mysterious gloom, the grisly, black, and scarped form of *Hjörleifshöfði*, a ghostly castle upon a Stygian strand.

¹ Cleasby derives it from *Kúði* or *Kóð*, the fry of trout and salmon.

But such weather would deform the fairest face that earth can show—would reduce the approach of Venice and of Wapping to an absolute level: as I afterwards saw it in clear sunny weather, Hjørleifs Head is by no means without a certain grim beauty of expression. The huge escarpment is a noble monument to him, who “fell by the basest of slaves” (Irishmen) because he “did not sacrifice to the gods.”

The scene now develops itself and becomes imposing in its cruel hideousness. We are off the eastern Jökull, so called in contradistinction to the western Jökull, now best known as Šnæfellsjökull. It is truly Iceland, “everlasting frost,” as oft-quoted Pindar sings, “and fountains of unapproachable fire.” Beyond the ghastly greenish waves, and the low base of black, bleak, and barren shore, appears a contorted *silhouette* of broken basaltic blocks, a line of “Kára Bábás” (Black Papas), rising in towers and battlements, and setting off the dead whiteness of the hogs-backs above, gleaming whiter still from their background of angry, watery, purple cloud-rack. The mighty mass starts from the south with the Mýrdals (mire-dale) Jökull, a tract of eighty-four square miles, which often gives a name to the whole; it then connects with the Goðalöndjökull, running east and west about fifteen to twenty miles long, by twenty to twenty-four broad, and utterly unexplored, save only the Kötlu-gjá;¹ thirdly, rising some way to the westward, the Eyjafjall-jökull floats in air, the mighty beacon which guides to his land-fall the sailor voyaging from the south. Here the southern or

¹ Several Icelanders (see Dr W. Lauder Lindsay) have visited the rift which engulfed Katla, the murderess and suicide; a name well known by the translation of Powell and Magnússon. “G. H. C.,” before quoted, who explored it in August 1874, after being misled by the map, found on the southern face “a deep circular indentation where black volcanic sand could be seen uncovered by snow and ice.” We can now explain by the usual method the glacier which, according to Professor Steenstrup, was torn from its moorings in 1721 by water within or below: evidently the heated ground melted the whole of the upper *calotte* and caused the catastrophe. Other traces were concealed by the snow-fall which, consolidating into glacier-ice, accumulates annually twenty feet, and fourteen years have elapsed since the last eruption. The guides were surprised that “their natural foe should present phenomena of a character no more startling and tremendous. What had they expected to find! Perhaps a vast yawning gulf, over whose edge might be watched the spirit of Katla, whirling like a second Francesca di Rimini in the sulphurous depths below.” Yet Henderson could descry from Skaptafell “the aqua-igneous volcano *Köttu-gjá*, whose tremendously yawning crater was distinctly visible” (i. 264).

warmer exposure, which Dr W. Lauder Lindsay saw almost bare as late as June 13, shows snow only in the huge rifts gashing its black tormented flanks; whilst its head is crowned with a silvery aureole, possibly the reflection of the northern side, and contrasting sharply with its canopy of slaty-blue sky. The aspect of all this *nevada* makes the discoverer's heart beat fast, but the tremendous chasms in the basalt suggest peculiar difficulties.

Still our weary skipper, indefatigable withal, was doubtful about his position, when Professor Pajkull's volume lying open upon the deck enabled all to recognise the southernmost point, Portland Head (W. long. G. $18^{\circ} 54'$; N. lat. $63^{\circ} 22'$). The broad and high escarpment is faced by three diminutive outliers, and the largest of these is known as Dýrhóla-ey, door-hill-isle; the Napoleon book translates Dýrhólar by *tumulus des arches*. Except that the port-holes number two, it exactly resembles the Doreholm of our Shetland Islands, prefixed by Pinkerton to John Brand's "Brief Description." A little to the east lie the Reynidrángar (rowan-needles), a sister formation of drongs, but curving south-eastward and not south-westward.

The freezing wind evidently blew directly from the mighty mass of snow-roofed glaciers lying immediately behind the shore, and it was midnight before we had covered the thirty to thirty-four knots separating Portland Head from the Vestmannaeyjar archipelago. The only sensible remark made about these "Irishmen's islands" was by an ancient seaman who, transferring his quid to the other side of his cheek, declared that they were exactly like a "toon with ill-liggit sta-a-cks." A small but enthusiastic knot of passengers did not turn in before five A.M.; they were rewarded by seeing sundry cockle-shell craft, the Norwegian steamer making southwards, and a peak which they determined satisfactorily, for themselves at least, to be Hekla.

June 8.

The morning, if we can so call it where night is negative, not positive, broke clear and cold, the north-westward savouring strongly of Greenland; and under the rosy sky the western

horizon was a white streak, as though the gleam of an iceblink,¹ adding a strange Polar charm. After Eyjafjall there is a complete change of feature; the sea faces a great alluvial plain cut by many broad streams, which breaks inland into waves of rolling ground, with dots denoting hill and hillock, and which ends northwards in blue-black ranges jagged with many a detached peaklet. A host of gulls and terns² put in an appearance: I afterwards passed twice along this line, and found it almost desert of feather. Our Cockney gun again amused himself by slaughtering and maiming as many unfortunates as he could—it is only fair to own that this wanton cruelty was not looked upon with a favourable eye. The sable-crested and silver-breasted eider ducks with their brown wives fell easy victims. The same fate overtook the black diver (*Colymbus Troile*) and the Lundi³ or puffin (*Mormon Fratercula* or *F. Arctica*), called sea-parrot, probably from the disproportionate painted beak which, however, does not lodge a talking tongue. They could hardly rise in the smooth sea, for their wings are short as if they were a transition to the penguins; but they scuttled away, paddling with their web-feet as fast as we approached them. The feathers of the Lundi are collected for stuffing, despite their prodigious growth of pediculi. It is the Shetlanders' Tommie or Tom Noddy, the Norie of the Orcades, the Priest of Scotland, and the Pope of Cornwall. Some travellers strongly recommend puffin-pie stuffed with raisin pudding and baked, but the oily flesh has a bad name as diet: its chief uses are fuel and fish-bait. Yet the "pope" or "priest," the half-fledged bird, is pickled and eaten in our islands. The Arctic Skúa (*Lestris Thuliaca*, Prey., or *Stercorarius parasiticus*), the Shetlanders' Bonxie, kept out of our reach as it chased and plundered its feathery brethren. It derives the opprobrious "*Stercorarius*"⁴ from a mere scandal,

¹ In Iceland the reflection of field-ice is brightest, but yellow; new ice is grey, and drift-ice is purest white. The use of "blink" is not happy: Ross employs it in "ice-blink" to denote a cliff or barrier; others talk of land-blink, i.e., the reflection of the sky upon the earth.

² The English "tern" is from the Icel. Therna (*Sterna hirundo*).

³ Hence "Lundy" in the Bristol Channel.

⁴ Baring-Gould (pp. 418, 419) gives four kinds of skuas—*Catarrhactes* (great skua), *Pomatorhinus*, *Parasiticus* (Arctic skua), and *Buffoni*. He makes "Kjór" the Icel. name for No. 3: I heard it so applied, but the Dictionary gives "a sea-

and "*parasiticus*" from its habit of harrying the tarroch (*Rissa tridactyla*) and the "graceful sea-swallow," which Mr P. Miles holds to be game (*Sterna macrura*). The Icelanders call this "viking of birds" from its cry, Kjói (pronounced *Kiowi*); and the Færoese Tyovi, "the thief." The white-robed Dominican, with its black scapular, has a strong wing, and the sharp, crooked claws which garnish the web-feet, make him a raptor addicted, they say, to attacking newly-dropped lambs. The gannets or solan geese (*Sula Bassana*, whence probably Sulisker, the Sule-skerry or flat, insulated rock never awash) fell before the shot, but after a short sickness they rose struggling, and winged their way towards land. These interesting birds, made conspicuous by their cream-coloured heads and black primaries, form Indian files or wedges when travelling from place to place, and separate where the tide-rip shows the sea to be unusually fishy. The "*Pelicanus Bassanus*," though connected by name with the Bass Rock, abounds about the Cape of Good Hope and Madagascar. It is a fowl of many titles. Here it is termed Súla or Haf-súla (deep-sea Sule); whence our solan, misnamed goose; and the Dutch know it as Jan van Genter—whence our "gannet" (?) Its fine shape and flight have probably given it a place amongst the "*singularia naturæ et providentiæ*," with which the good Bishop Pontoppidan has supplied these northern regions. Hence, according to Meyerus (*de volucris arborea*), the *conchæ avitificæ seu anatifera*, birds growing like African oysters on trees: this fable finds a pendant in Los Pateros of Manilla, duck-hatching establishments where men incubate the eggs. Mr James Wilson, speaking of the Solan goose (*Sula alba*) of St Kilda, computes that the 200,000 birds forming the colony consume between March and September 214 millions of herrings. Jerome Cardan (Travels in Scotland) found the "Soland, perhaps Pliny's sea-eagle," a bird of general use. In spring they supplied the garrisons with fuel, to say nothing of fish; they patiently endured their young to be taken from them; they have quantities of fat

bird of the tern kind; Hill's *Sterna*." We find the family mentioned by Pigafetta, the circumnavigator (A.D. 1519-22), under the libellous name "Cagassela" or "Caca uccello," and he himself oftentimes witnessed the practice which survives in the term *Stercorarius*. It is an Antarctic as well as an Arctic "pirate of the seas."

under the skin used for dressing wool (*hac lanas inficiunt*), and a "certain small gut" yields a grease which is excellent for pains in the hip-joint. "The profit this bird gives is manifold, viz., from sticks, feathers, fat, and young ones; and it is said to amount to 500 golden crowns yearly"—an extinct industry!

We ran along the shore of Krísuvíkberg, with precipices some 200 feet high fronting the leprous splotch upon the conical and jagged highlands that denote the Krísuvík Sulphur Mountain. This formation accounts for the sandstrips, which look notably yellow after the black lowlands to the east; and the colour is rendered brighter by quantities of comminuted sea shells thickly spread on the shore. This south-western projection is one vast "Hraun,"¹ or cold lava-field, a land seemingly afflicted with "black death," yet it rejoices in the title of Gold-breast Canton (Gullbringu Sýsla); the plentiful fisheries representing the precious metal. At nine A.M. we ran by the "Karl" (carle or old man),² a detached mass standing boldly out from the lava-crested coast; it has a ridge and steeple, which, especially when seen from the west, justify the English "Church Rock." Here, like the great lava lip beyond, its flanks are white with the guano of the Filungr or Fulmar³ (*Procellaria glacialis*), foulest of sea-fowl. Beyond it is a bunch of volcanic cones and tumuli, spiracles and hornitos, all bare rock, or clothed with lapilli; one grass-clad crater appears to be of considerable size, and we easily count four distinct *coulées* or discharges spilling over the Palagonite cliffs.

Behind the leprous Karl lies Reykjanes, or Reeky Naze, so named with a reason. A puff of steam rose high in the air, suggesting, as I read with astonishment in the *Scotsman* (June 17th),⁴

¹ A term of daily use, derived from "að hrynja," to flow, to stream down; its pronunciation (*Hroya*) induces the facetious traveller to call it the "road to ruin," and Henderson wrote as he spoke, Hroyn. "Gullbringu" is usually translated gold-bringing; but Cleasby, sub voc. "bringa," derives the word differently, and makes "Gull-bringer" signify the Golden Slopes. In Sect. VII. of Introduction a third signification has been given.

² Hence the country word "Karl Cat," for tom cat, still preserved in heraldry. The Icel. Karl is pronounced *Kall* or *Kadl*.

³ Farther south the Fulmar is called the Mollie-moke; hence the "mollie," or mild orgie on broad northern whalers.

⁴ The following is the whole text of the letter upon the "Expected Eruption of Mount Hecla" (which did not take place):

"MANSE OF ARBUTHNOTT, July 2, 1872.
"SIR,—Will you permit me to add the following to your paragraph with the above heading in the *Scotsman* of to-day? While doubling Cape Raikianess, the south-west

that "a new Geyser had burst out at a point a short distance inland, and about twenty miles in a south-westerly direction from Reikiavik, throwing up a vast column of water to a height of at least a hundred feet." The "same outburst was observed in full play on the homeward voyage of the 'Queen'" (June 11, 1874), and was held to be "premonitory of an eruption of Hecla." Had the writer looked at the large map of Iceland, he would have seen four blue circlets placed behind Reykjanes to denote warm springs; they are supposed to be the work of the Skaptarfells eruption, which, in 1783, threw up Nyöe, "the new island." The map of Iceland in Pontanus (1631) shows at this place a "fons commutans lanas nigras in albas." I may observe that in the first place we saw only steam, not water, or rather that we were too far off to distinguish anything but the former. Secondly, the weather was exceptionally still and rainy; and the damp air, deficient in barometric pressure, allowed vapours to rise high, whereas, under opposite conditions, they would be dispersed, or hug the ground. The Geysirs are said to rage more furiously in wet than in dry weather; and on arrival at Reykjavik we distinctly observed the fumes of Laugarnes, which suggested the name "Reeky Bay,"¹ standing up in a tall, transparent column—

promontory of Iceland, on the morning of Saturday, June 8, we saw a remarkable Geyser a few miles inland, shooting up water at regular intervals of about five minutes to a height of at least 100 feet. All on board who had ever heard of the Great Geyser, so graphically described by Madame Ida Pfeiffer and others, but which is sometimes so unpolite as to keep sightseers waiting two days before it favours them with an exhibition, were amazed at a spectacle so remarkable, and yet so unremarked by any who before us had visited Iceland.

"After attending service at the church of Reikiavik on Sunday, I did myself the honour to call upon the Bishop of Iceland, an excellent, courteous old gentleman, who, if he does not dwell, like the Psalmist, in a 'house of cedar,' dwells, like his flock, in a house of Norwegian fir. He could not speak English, but he spoke French well. To him I mentioned the phenomenon we had seen, believing that he was as likely as any one to know whether or not it was new. He told me that he knew the district well, but that there was no Geyser there at his last visit; that what we had seen, therefore, was quite new. In answer to my inquiry whether there had been any recent volcanic disturbance in the island, he informed me that there had been a violent earthquake in the northern region about the middle of April. This outburst of a new Geyser (which we observed in full play on our homeward voyage on Tuesday, June 11) and the earthquake in the north, seem premonitory of an eruption either of Hecla, or of some other of the other seven mountains which Keith Johnston, in his Physical Atlas, marks as active volcanoes. I hope we shall shortly have a description of any such occurrence, if it do take place, from the graphic pen of Captain Burton, whose society made our outward voyage a rare treat.—I am, etc.

"(Signed) R. M. SPENCE."

¹ Reyk = reek (Kelt. Ruagh, Re&c, and Ruah, the German Rauch), seems to be a word common to the Aryan and Semitic families. Old philologists derive it from the Hebrew Ruach, Arab. Rûh or Rîh, wind, breath, mind, spirit. Spinoza,

it was not seen from the town during the rest of my three months' stay. I twice voyaged past the site of my friend's "new Geysir;" every glass was pointed shorewards, but none succeeding in detecting the least trace of water or vapour. In 1862 Mr Symington (p. 46) observed "steam rising from a hot sulphur spring on the coast" near Reykjanes. Finally, as will be seen, Icelanders who have visited the spot describe the features as "Hverar," caldrons, boiling fountains; or as "Laugar," baths, tranquil waters.

The Fire Isles being hidden by fog, our attention was drawn to the mosquito flotilla of fishing-boats around us, each confined to its beat by the various buoys and buckets. The general appearance of the craft is that of the Shetlands; Mr Spence compared them with the "Westræ skips," but the Icелander is not nearly so solid as ours. The largest carry two low masts, both strongly supported by backstays; they are clinker-built, high at stem and stern, with a sharp projection for the rudder, which fits loosely into two iron eyes, and which often proves worse than useless. A transverse section forms the letter V; the planks belly out little, probably for facility of hauling up: the latter process, especially when the sun is hot, renders them exceptionally leaky, and want of care causes them to last for a very short time. There is no such thing as a decked boat in sight; the total of sixty-one to sixty-three which exists in the whole island being almost confined to shark catching on the north coast, whilst there are 3092 open boats, with from two to twelve oars. Row boats are preferred on account of the number of hands they feed; and hence the unusual loss of adult males, which is said to average forty per cent. drowned. At all times the crews must run three to six miles out before arriving at their ground, and repeat the task after work—a vast waste of time and toil. The craft has plenty of what the French call *piéd*, and will not hesitate to cross the Faxa Fjörð, some fifty miles broad. The ballast is composed of basalt blocks, and the numerous sails are mere strips of cloth, for greater convenience of lowering. The oars are remarkably narrow, the rule even in

the Hebraist, translates, apparently with reason, "Ruach Elohim" (the Spirit of Elohim or Gods, Gen. i. 2) by "a strong wind."

"The Islands,"¹ a precaution rendered necessary, it is urged, by the strong currents. I strongly suspect it to be the mere effect of "father-to-son" principle. Below the handle, the shape is a heavy square, on the principle of the Rhine and the Kaikjis on the Bosphorus. The oars fit into coarse thwarts, lined with hoop-iron, or they play upon rude wooden pins doubled to the fore. The stroke is very long and slow, hardly to be recommended for Oxford and Cambridge; and of course feathering is impossible. Iceland nets are ridiculously small, and are floated by gourd-shaped bottles of Danish manufacture, closed at the mouth: these glass balls are also used by Norwegian fishermen. At the capital there are no lighters; farther north they will show themselves, shaped like the fisher-boats, but many-ribbed as herrings. Evidently the first want is a decked vessel of from twenty to thirty tons, which would employ fewer hands, and show better returns.

The smaller craft are four-oared, and at the landing-place we shall find two-oared boats: not a gig is to be seen, and the highest authorities must embark and disembark, if they cannot borrow from a man-of-war, in these receptacles of slime and filth. The seat is a mere perch, decidedly not comfortable; baling with the little wooden scoup is hardly ever thought of, and all are equally wet and greasy. We read in the Sagas of "long ships," of dragon ships, and of merchantmen, whose common complement was some thirty oars: the figure-heads of the Vikings were so frightful that they terrified the Land-vættir, or local genii; and the decks were protected by awnings, and "girdled for war" by shield being laid to shield on rims or rails.² Truly, the mariners of Iceland have lost much by staying at home in ease; and piracy evidently had its advantages.

The crews of these outlandish "skips" are as degenerate as their craft. Silken kirtles, gilded helms, and spears inlaid with gold, are as unknown to them as the "Bisons" and "Serpents"

¹ "Eyjar" is often used of the Western Isles, Orkneys, Shetlands, and Soder or Suder (Suðr-ey, south isle, whence the diocese of Soder and Man). In south Iceland it is also applied to the Vestmannaeyjar.

² One of the earliest forms of armour-plating, the old defence still survives in the nettings of our bulwarks.

which caused "a furore Normannorum libera nos, Domine!" to be inserted into the monkish litany. The men are good for fine weather, but in danger all become captains; very different from the Danish sailor. The comfortable primitive costume is gone; the Stakkr, hide blouse or jacket, extending from the neck and fastened round the waist; the large Sæskór, or water-boots; and the Leistabrækr, or stocking breeks, also lightly laced about the middle. The moderns are clad much like our fishermen; they have, however, sensibly preserved the long-flapped "sou'-wester," now "out of fashion" in Great Britain. They seem to rejoice in wet feet, wearing three or four pair of coarse woollen socks, which serve to retain the water. The only peculiarity of their dress is the Iceland glove, which even the shepherd and the mountain-guide will never doff. For the convenience of a dry and clean side near the palm, it has two thumbs, one projecting from the little finger, as if all were *sexdigitati*, like the Shaykhs of the Fazli clan near Aden. Little or no provision is taken on board, and the chief luxury is snuff, the pinch being spread in line from the root of the thumb upwards, somewhat after the style of the original Scotch "sneeshin' mull;" at times the flask is raised to the nose, and poured in till that member, which ought here to be placed bottom upwards, is filled. These water-ousels reap golden harvests of cod during the season, sometimes clearing per diem ten rixdollars a-head; and if you hire a Reykjaviker two-oar for the afternoon, you will not pay less than \$5. They are rarely long-lived. Privations, fatigue, and hardships, wet feet, poor food, and defective hygiene soon get the better of the "*triste laboureur de l'ocean*:" weakened by psora and ascarides; by obstinate coughs, measles, and hypochondria, he soon becomes a victim to chronic rheumatism, which will bend the fingers permanently back, and he dies early of visceral or pulmonary affections, gout, or paralysis. Better a life of a canvas-back shooter on the banks of the Susquehanna.

After Reykjanes we bore north (magnetic) along a shore exceptionally populous: farmsteads and chapels, each perched upon its own knoll, and not unlike the clachans of Lewis, formed a straggling line, black and gloomy, surrounded by walls of dry

stone. We turned eastward off "Skagi Point,"¹ a long thin lingula with a beacon at the tip, and with a dwarf *enceinte* of dry stone inland, probably a look-out in the old Vikingr days. Steaming across the big back-bay towards the next headland, Suðrnes, afforded us for some moments an agreeable surprise. Right over the gulf called Faxa Fjörð, and distant some forty miles, rose a long broken dorsum of snow-range, not unlike the Friuli section of the Carnian Alps, the continuation of beautiful Cadore, as seen in winter from the Rive of Trieste. Here, however, the projection, a sister to that of Reykjanes, was terminated by the crescent-shaped head of Snæfell, the western Jökull, whose two cusps at once denoted the extinct crater-cup. The *névé* towered in the lift, catching a golden gleam which beautifully burnished the virgin silver, whilst above and below it slaty clouds were based upon a darker sea now smooth and mirrory as oil. The travelled few on board pronounced the spectacle grander than Mont Blanc from the Hôtel de la Russie, Geneva, but the fair vision was transient, and presently a *bonnet de nuit* of chilly lowering mist settling down made it a "Pileatus." To the north-east, and far nearer, stretched the long sea-arm Hvalfjörð, an inverted arch, with its two giant steeples Akrafjall and Esja, whilst the scarps of Skarðsheiði formed the bottom of the great *cul de sac*. Passing clouds of pseudo-columnar shape, here a common feature, simulated volcanic smoke; mountain head and shoulders were streaked with snow, whilst at their feet brooded the sea-fog, a horizontal line of blue mists broken and detached. Presently the rain came on again, and perforce we confined our attention to the features close ahead.

The pilot now boarded us, leaving his cockleshell in charge of his mate, an angry water-rat with otter-like features, the usual fishy eye, and gold ear-rings, the general usage. We made straight for the little archipelago, which in this weather appears part of the mainland. The nearest item was Akrey: as craft in harbour can be seen to the south-east, and that direction leads straight to shipwreck, "Cornfield Isle," a mere grass-grown bulge of rock, has an outlying buoy to the north-east, warning

¹ English tautology. Skagi (in Shetland Scaw or Skaw, *e.g.*, the Skaw of Unst) is a low cape opposed to Höfði, a high headland (Cleasby).

us off its long projecting point. The next feature left to port is Engey of the eider duck, a mound provided with the long, curving and knobbed tail of a scorpion. Then came Öffirs-ey,¹ a bit of turf-clad basalt, in places sub-columnar: a red buoy, "stone-men" and a beacon, give warning that its spit is also dangerous. About Öffirs-ey and Akrey are two islets, the Holmar: the larger and outer, *bombé* and slightly grassy, is the Sker (skerry), or Selsker (little-farm-skerry); and the other, dignified by the name of Grand Holmr, connects, like Öffirs-ey, with the shore at low water by a traversable natural causeway. The other islets are Viðey (wood or withy eyot), which we shall presently visit, and Lund-ey (puffin eyot), at the mouth of Kollafjörð (ewe firth): there are also sundry shoals and banks scattered about to the north and west, making the outer roads of Reykjavik safe enough except when the storm-wind blows from the north-east or the east-north-east.

The amount of shipping surprised us when we remembered that the first steamers appeared here in 1854-55. In the roads lay a French frigate, "Le Cher," Capitaine Alfred le Timbre, looking taunt and gay: her consort, "Le Beaumanoir," Capitaine Maylet, will soon come in from the east. The Danish gun-boat "Fylla," the waiting-maid of Frygga, had lately been outside sounding in preparation for the telegraphic cable: she is a sister ship of the "Diana," which also flies a pennant, and which to-morrow will land the governor of the island. The "Jón Sigurðsson" had just left, and the "Yarrow" lay inside amongst eight square-rigged ships bearing the flags of various nationalities, whilst, drawn up ashore, was a Noah's ark, in the shape of a Danish galliot, almost circular, like the old Dutch dogger or the modern Russian monitor. Five to six steamers in port argued well for progress within the last twenty years, and presently we shall see the "Heimdall," called after the giant foe of Loki.² This school-ship for the Danish navy is a frigate (Captain Skowströp), freighted with thirty-six cadets—a rather noisy lot. An English yacht which floats like a sea-bird will also astonish the natives.

¹ Originally Örfiris-eye, which has been explained under Orfir of the Orkneys.

² Heimdall was the doorkeeper of the gods, who kills and is killed by Loki.

The aspect of Reykjavik from the sea is more unlike its description by travellers than, perhaps, anything that I have yet seen—even Humboldt's Tenerife. One expects, after the Haurán-like profile of the coast, to see a "Giant City of Bashan" rising from the waves. Old sketches suggest the "negative features" of John Barrow, the miserable show of a few tarred pent-roofs topping the black shingle, but free trade has changed all that. Even on this dull day, when it looks its worst, we cannot call its aspect "*triste, morne, désolé.*" Where, again, are the gaudy colours noticed by Mr Bryson? We see nothing but dingy-white, dull-gamboge, verging on rhubarb, slate-grey, and tar-black, a perfect contrast with the Norwegian town—

"Where tawdry yellow strives with dirty red."

At both extremities, east and west, the ground is stony, and rudely-formed basaltic pillars line the water, guarding ragged scatters of fishermen's huts. The right point (west) is called the Hliðar-hús (lith-house), a classical name. On the left a grassy earthwork and a flagstaff still remain to remind us of a quaint passage in local history. Icelanders are much given to boasting that their island, which contains the population of a third-rate English town, was never conquered; that Thule is still *invicta*. Yet in 1809, Mr Sam. Phelps, of London, a soap boiler, who considered himself aggrieved by the authorities, landed a dozen jail-birds from Gravesend, and forcibly took possession of the capital. He established an independent republic under the wing of England; and his Cromwell was a Danish seaman, Hr Jørgen Jørgensen, "Protector of Iceland, and Commander by sea and land." This Dictator, a bad Masaniello, seems to have acted with peculiar energy: he threw up the redoubt; armed it with six small cannon, brought from Bessastaðir; and hoisted over it the flag of independence, three slit cods (stockfish) argent in an oval garland, on a champ azure. Better, at any rate, than Yarmouth, with its three bloaters! The ridiculous affair was squashed by an English frigate, the "Talbot" (Captain Jones): the earthwork was disarmed, and the guns were thrown upon the beach; whilst "Mercator Phelps," as Bishop Pétursson calls him, Jørgensen, & Co., were removed to England. It was the second time that the island, "bound in

with the triumphant sea," nearly fell to the "Britishers" lot.¹ Christian II. was upon the point of pledging it, as the Orkneys and Shetlands were temporarily transferred to the Scottish Crown, but he was deposed before the bargain was struck.

Between the points lies the inner or boat harbour, clear water in which floats a crop of "sea-ware," especially the long, tufty hair of the Hoy or Haar-teari (*Fucus aculeatus*): it is supposed by some to have named the Færoe Islands. But, however clean the water, it is considered too cold for *uso esterno*; and the English eye at once misses the machines and sheds and other appurtenances of a bathing place. The ripple is confined by unclean black sand, strewed with boards, nets, and offals of all kinds, especially thorsk or cods' heads. There are fair landing-places, plank pierlets, kept steady by caissons full of stones, and not removed in winter: the traveller may see the same style all round the coast, and perhaps he will remember making Venice through the "Murazzi." The principal buildings, beginning from the right as you face the town, are the Glasgow House, the Bridge-house, the Post-office, the Club, the merchant stores, and the coal-depots belonging to the Government and to Mr Slimon. Behind rises the steepled Dóm-Kirkja (cathedral), and we see with pleasure that the College, *alias* the Latin School, is larger and more important than Government House. The tenements mostly face the beach; the roofs, pitched steep against the snow, are slated or boarded; tiles are common, and turf is preserved only by the poorest. They are built of planks like Valparaiso, earthquakes being not unfrequent; but I could hear only of one fire—a notable contrast to the "Vale of Paradise," where the stone house is impossible, and where being burnt out is purely a question of time. Above the west point is the Catholic chapel and a windmill; the winds can never be very violent, or this thing would soon be blown up like a tent high in the air. The opposite rise is garnished with another windmill, also lacking steerer; and with a double-storied tower of solid masonry, called the Observatory. The surface of the upper country has that dull, dark-green tint, so difficult to shoot against, and so characteristic

¹ I dismiss the "Iceland Revolution" in a few lines, for Baring-Gould (Introd. xlii.) has given a very complete account, borrowed from Hooker and Mackenzie.

of the Emerald Isle in early autumn. The people complain that the rains have been scant this year, that hay will be scarce and dear, that the fishing season has been bad, and so forth. The inland view is bounded by a long, unbroken range, which we shall see on the first clear day.

All Reykjavik assembled to gape and chat upon the shore, whilst a torrent of strangers poured on board. They were assailed with questions by the tourists, and the answers were satisfactory as usual. The Hotel had been abolished. The Club did not receive guests; never a room was to be had for love or money. We must pitch tents upon the beach—pleasant during this weather, a bad November in England! There was hardly a riding-pony within fifteen miles, although some four hundred were awaiting embarkment. Guides were unprocurable, all hands at Reykjavik being thoroughly engaged, and the telegraph scheme making even the idlest unwilling to take temporary service. No one would change sovereigns for rixdollars. At the same time, if we would put ourselves unreservedly in the hands of our kind and courteous informants, who were of the horsiest, we might possibly find lodgings, ponies, guides, dollars.

Before landing, I discipline myself severely. From London and Edinburgh, even from Leith, the fall to Reykjavik being heavy, the traveller's eye is apt to view everything through a jaundiced medium, and the consequence is undue depreciation. Everywhere, and at all times, it is difficult to find a standing point of comparison from which to prospect persons and things, and which shall be fair to the subject, and intelligible to the reader. One man sets out with "the City" in view, and is called a "Cockney traveller;" another and a numerous class looks at matters through the spectacles of civilised life in England, perhaps the easiest way when writing for Englishmen; whilst those who have seen much of the world make themselves unintelligible and unpleasant (myself, alas!) by drawing parallels between scenes unknown or unfamiliar to their Public, who resents the implied slight accordingly. Hence it is generally said that works of exploration are mostly read only because they must be read, and that the book which treats of the land best known to us is that which gives the highest enjoyment. For

here we have the pleasure of comparing the impressions made by the same things upon the writer's mind and upon our own, a process far more personal and more satisfactory than mastering mere discoveries or pursuing a tale of extraordinary adventure, which we often only half believe. And when reading travels in absolutely new lands, we feel that we are reading the opinions of another man, without the concurrence which alone can check them. But the veteran voyager is a practical "Pantisocrat," and he must especially adopt the advice of Juvenal:

"Audeat ille palam qui vidit, dicere vidi."

And nowhere is greater care required than in studying a mother-city, the characteristic of its race, the living photograph; the manifest expression of its manners and customs, and especially of its short-comings. "Capitals represent doctrines." Apply this to the old drab-coloured utilitarian London, now happily passing away, with its boxes of mean brick and of hideous "stone-colour," where every man's house, reckless of order, regularity, and economy of space, was his castle, small, dull, and dry as the educated mind; with its Belgravian "palaces" and wretched porticos, which an hour with a crowbar would demolish, expressing a rental more than sufficient for a "*hôtel entre cour et jardin*" in Paris, Vienna, or Rome; with its utterly tasteless and artless works of art which sadden the civilised eye, looking, a foreigner observed, as if the foul fiend had scattered them flying; with its slushy and greasy streets, the richest population in the world being apparently too poor to keep them clean; and with its shops exposing, even in Bond Street, corpses of poultry, sheep, pigs, and cattle for the use of carnivorous denizens. We can hardly wonder when the "wild-cat correspondent" of the Yankee paper describes it as "a vast wilderness of dingy brick and stone, of huge half-empty palaces and roaring torrents of humanity—a money-snatching metropolis where vice and poverty herd and breed in filthy alleys behind the abodes of the great and wealthy."

We bid adieu to the "Queen,"

"That white-winged monastery moving still,
Of rugged calibates against their will."

She leaves for England on the sixth day, and thus five of our fellow-passengers hardly find time for the shortest scamper across country. Her captain and her crew have claims upon our gratitude; we are unanimous in declaring that all are good men and true, and in recommending them to the author of "Ship, ahoy!" The old traveller ever prefers the English steamer, even at a sacrifice of comforts. He will find fair-weather sailors all the world over, but in the day of danger he will repent having added unnecessary risk to his travels. The French decision upon the conduct of the "Ville de Havre"—a disgrace to a civilised people—is another reason for carefully avoiding foreign craft. Under English, of course, I include Scandinavian and American (U.S.), and carefully exclude the average Latin race. Yet it is only fair to say that the P. and O. boats in the Mediterranean have found it an excellent plan to engage Italian sailors, officered, of course, by Englishmen. The crews are quiet and trustworthy, thrifty, and hard-working; a strong contrast with the turbulent, drunken, ne'er-do-weel which in these days too often represents the old man-o'-war's man. In England, a sentimental regard for the name "Jack" prevents our seeing the immense deterioration of the class owing to the mixture of "tailors" and good-for-nothing landmen: my colleagues of the Consular Service will, however, I think, agree with me that foreign port-towns would be benefited if many of the so-called "British sailors" were never allowed to put foot ashore.

CHAPTER III.

REYKJAVIK¹—THE SUBURBS—THE LODGING-HOUSE—THE CLUB AND THE WAY WE SPEND THE DAY.

THE latitude of Reykjavik—the residence of the governor and the Supreme Court of Judicature, the episcopal see, and the chief mercantile station—is N. 64° 8' 26",² a little higher than Norwegian Trondhjem (Thråndheimr),³ which English books and maps will write Drontheim, and about that of Archangel. In the map of Pontanus (1631) it does not appear. About A.D. 1760 it became the chief port, although till seventy years ago it was a mere scatter of fishermen's huts sheltering some 700 human beings. Travellers of the last generation, Hooker (1809)

¹ Reykjavíkr in the nominative sing. is an abstract linguistic fiction, from Vík (feminine), a bay, a wick (*e.g.*, Greenwich). Travellers neglect the Icelandic termination, and even English literati omit the *-r* or *-ur* as superfluous and strictly correct only in the nominative, *e.g.*, Leif for Leifr. From Vík, a bay, comes Víking, a baying-voyage, or seeking the shelter of bays, and Víkingr, a baying-voyager, or a voyager from the fjords. This word, sometimes written Vi-king in English, suggests a wrong etymology. Cleasby warns us that the termination *-wick* or *-wich* is Norsk only for maritime places, the inland "wicks" derive from the Latin *vicus*. Local names beginning with *Reyk* are unknown to Scandinavians, and peculiar to Iceland where the pillars of steam must have struck the colonist's eye.

² Taken at the cathedral. The longitude (G.) given by Norie is W. 21° 51' 3", by Raper 21° 55' 2"; Norie gives the lat. 64° 9' 0", Raper 64° 8' 4". The variation of the compass is roughly 35° off Berufjörð; 35° 15' off the eastern Jökull; and 45° off Reykjavik: it was in 1814 (Henderson, i. 250) "two points towards the west;" in 1840 (French charts) it was W. 43° 21'. M. Lottier (1838) made it 43° 14'; and in 1871 (Admiralty chart, by Captain Evans) it was 44°, still increasing at the rate of 5' per annum. Consequently the people have two norths—north by compass and true north, the latter at Reykjavik fronting the mountain-block Akrafjall. The inclination (dip) of the magnetic needle (French chart of 1840) is 76° 45'. The vulgar *Établissement du port* (Hafenzzeit, high water at full and change), French chart, is at 5h. 0m.; and the maximum height of the tides 5m. 35 cent. The Admiralty tables give spring-tides a rise of 17½ feet and the neaps 13½.

³ The Dictionary translates it "home of the Thronds" (Thrændir).

and Mackenzie (1810), show the extent of improvement : in their day the townlet had only two streets—much like the Cowgate and Canongate of the last century. One line of buildings fronted the sea and another set off from it at right angles. Now we have a fair north-of-Europe port. It has lately risen from the 1000 or 1600 which travellers generally give it; the stationary population, according to the census of 1870, was 2024 souls; at this season, when the fair is approaching, we may add as a maximum 500. I need hardly say that the 50,000 of our hydrographic books is a misprint.

The sacred pillars of Ingolf's Hall (*öndugis súlur*¹), unduly translated "door-posts," or "wooden door," probably chose Reykjavik because it is the largest anchorage-ground in this "Canaan of the North," and his thralls were justified in reproaching their lord for preferring so rugged and barren a corner to the more fertile regions farther east. The harbour is dangerous only when the wind blows off the *Esja massif*, forcing ships to run out seawards, and the tides of late years have not flooded the town. The picturesque background will be described when we can see it. The site is on the northern side and near the point of the *Seltjarnanes* (Seal-tarn-naze), a peninsula, whose lowlands are digitated by the prevalent winds and driving seas. Henderson very poorly describes the town as "situate between two eminences that are partially covered with grass:" it is built on both gently-sloping sides of a dwarf river-valley draining the *Tjorn* (tarn), a lakelet to the south, about 800 yards long by 400 broad. The ditch which has evidently been much larger, and which some propose to deepen into a port, is crossed by some half-a-dozen bridges, one with iron rails painted vermilion; it is in

¹ From "And," opposite, and "Vegr," an "opposite seat," a "high seat." In the old timbered hall the benches (*bekkr*) were ranged along the walls with the two seats of honour in the middle facing one another. The northern, fronting the sun, was called *Öndvegi æðra*, first or higher high-seat, reserved for the master, and the other was *Úæðra*, the lower or second, kept for the chief guest. In England the master and the mistress sitting opposite each other at table, may be a remnant of the old Scandinavian custom. The sides of the high seat were ornamented with uprights (*öndugis súlur*) carved with figures, such as a head of Thor: these posts were regarded with religious honour and were thrown into the sea as guides. When a man of rank died, the son, after all rites performed, solemnly sat in his father's seat, as a sign of succession, but this was not done if the paternal murder remained unavenged (*Cleasby*).

the foulest condition; but here cleanliness is not next to godliness. Throughout Reykjavik a smell of decayed fish prevails, making strangers wonder how it escapes pestilence and plague; and the basaltic dust raised by the least breath of wind causes hands and face to be grimy as at Manchester or Pittsburgh.

The mass of the settlement lies in the dwarf hollow of the streamlet, somewhat protected from the blasts, and straggles up both slopes of the rivulet-valley. But for this it would be unpleasantly windy; and, as is said of Landudno, between two waters is nearly as bad as between two fires. The neighbourhood is a lean neck of flat and barren ground, with the sea to the north and south, whilst, in the former direction, the great Hvalfjörð inlet sharply cutting the Esja and the Akranes blocks, and backed by the snowy Skarðsheiði, acts as a wind-sail. The same reason makes the rains exceptionally heavy. The shape is long-narrow for sea-frontage rather than deep, and the orientation is puzzling as that of Hebron.¹ I shall call the right flank of the valley east and the left west, although the correspondence is by no means exact. Along the shore runs Harbour Street (Hafnar Stræti), with the north side open to the bay: here are the chief stores and shops, the warehouses and coal-depots, the Club and the Post-office. At right angles, and to the west, a High Street (Aðalstræti) stretches some four hundred yards to the tarn: it begins from the head of the chief pierlet, passing under the archway of the Bryggju-hús (bridge- or pier-house),² a place of customs, whose occupation long gone is now returning to it. Broad enough to dwarf the houses, macadamised and straight, like all the best thoroughfares which cross one another at right angles, it sounds hollow to the tread, as if walking upon a boiler—the “Rimbombo,”³ as Italians call it, not uncommon in newly made ground, which propagates sound. It is traversed

¹ There is a plan of Reykjavik, but the size of the scale keeps it in MS. Baring-Gould and others give ground sketches, which are now obsolete.

² In Icel. *Brú* is a bridge in our sense of the word; *Bryggja* is a landing-place as well as a bridge.

³ This hollow sound may be remarked even in the new town of Trieste, where a passing omnibus shakes the substantially-built stone houses. Such soil must be always the most dangerous in case of earthquakes, which are comparatively harmless on the adjacent hill-slopes.

here and there by impure gutters, which are unwisely covered with iron-cramped boardings: I rejoice to hear that they were cleaned out for the royal visit. High Street abuts upon a square and whitewashed wooden building, labelled Hospital in white letters on a blue ground: here is the chief pump which works a well 12 feet deep, and revetted with dry stone. The first aspect of the gabled *tout ensemble* strongly suggests Alder-shot.

Turning to the left we reach the Austurvöllr,¹ or Eastern Square, a kind of Parsons Green, with three built sides, the fourth being still open towards the tarn. It is the regular camping ground for inland travellers who pitch their dwarf tents and peg their ponies where a handful of grass can be nibbled. Here is the "Cathedral," whose adjoining cemetery has now disappeared. The houses are built with the scant regularity of a Brazilian village; they face in every direction towards the sea, or towards the rivulet-valley, and rarely southwards as they should do for the benefit of sun. With rare exceptions, they are all wooden frameworks of joists, filled as in Germany with basaltic slabs, and mortar blue with dark sand; the walls are boarded over, as without the stone they would be unsupportably cold and hot. They are short-lived like the "skips," requiring frequent repairs, and rarely lasting beyond thirty or forty years: their endurance depends greatly upon the quality of the wood; the maximum of age would be nearly a century, but only when the timber is not mixed with turf and peat, which, crumbling under sun and frost, causes early decay. Barents' house (built 1597), "in the wilde, desart, irkesome, fearfull, and cold countrey" of Novaya Zemlja, was lately found (Captain Carlsen, 1871), uninjured by the dry air. On the other hand, the excessive damp renders danger of fire nugatory, compared with the wooden match-boxes called houses at Constantinople. It is to be wished that the tenements could be "telescoped" during the hot weather, as most families pass the whole year in town. Many of them

¹ The word Völlr (plur. Vellir, and gen. pl. Valla) means a field, and is akin to the German Wald. It often occurs in the plural, e.g., Reyni-vellir (Rowan plains); and "Thing-valla," the foreign way of writing, is properly Thing-vellir.

are revetted on the weather-side with imported slates, and all are numbered, even as the thoroughfares are provided with names. There is far more open ground than building, each "plant-a-cruive" being girt with planks or rails, useful for drying clothes, and showing no want of wood. The best plots are surrounded by wire, often a single strand, which has extended to the country parts, or by walls of dry stones; the latter shelter the sterile dock, with here and there a stem of angelica, not unlike a wild artichoke. The land, neatly hoed in straight lines drawn between two pegs, and raked by the women, is planted with "Garden sass," especially parsley and fennel, kail and turnips; fine cauliflowers, cabbage and potatoes; the latter will not ripen till the end of August, when snow has left the mountain-tops. Radishes must be set in boxes guarded by wooden hurdles or by nets to keep off the birds; they are fair-sized but hollow and flavourless. The rare flowers are chiefly geraniums and fuchsias, pansies and marigolds; but as in Norway and the North generally, flora flourishes best in pots behind the little half-blinded windows; here the oleander will be a whole foot high. Of fruits, we find chiefly the hardy currant, and a few gooseberries and strawberries, with a southern exposure, mostly protected by glass. In 1810, it will be remembered, there was "not a single garden or vegetable of any kind growing in the place."

On the right side of the main drain, and higher than the "Pelouse," rises the Latin School, ridge-roofed, tiled, coloured rhubarb-yellow, and provided with a shallow façade of three windows, as many being pierced in both wings. To the south is the College Library, a plain building of large basaltic blocks, partially whitewashed; the glass panes look as if they carried the dust of ages. Farther down stream, and a little above the right bank, is Government House, a substantial barn, also of whitewashed stone, fronted by a well drained slope, and a bit of meadowland, courteously called a garden; its dignity is denoted by a tall flagstaff. It was originally an almshouse, and a tug-hús (jail); old travellers tell us that, as the poor preferred its comforts to their wretched homes, it was not easy to keep certain citizens out of it. Count Trampe, a governor whose hospitable

name is well remembered, especially by travellers, left it a one-storied building; the present occupant added a second floor. The houses on a level with the open drain below are to be avoided; the air during a sunny day is like that of a hot-house without the perfume, and the nights are stifling to an extent for which a stranger is not prepared. Here is the photographic establishment of Hr Eymundsson, who saves his guests expense as well as trouble.

The houses of the "honoratiore," the "upper ten," are in the sole of the valley, and the east is here the "West End," boasting of the Palace, the Library, and the High School. Lower down lie the Bishop Pétur Pétursson; the Chief-Justice Hr Jonassen; the Land-Fógeti, or treasurer, Hr Thorsteinssen, who is also Bæar-Fógeti (Danicè, By-foged) or mayor of the city; the Land-læknir, or head physician of the island, Dr Jón Jónsson Hjaltalín; the French Consul, M. Randrúp; the editor of the local paper, Hr Procurator Guðmundsson; the Postmaster, Hr Finsen; and the college professors. The principal building on the west or left bank of the river-valley is the old "Glasgow House," which has passed through various phases. It was originally built by Messrs Henderson & Anderson for a dwelling-place and warehouse, as shown by the belvedere, the crane, and the dwarf tramway. When that firm came to grief by trusting to native agency, it became a hotel: hence the "Iceland Reader," by Hr Lund says:

"Thar er gestgjafa hús" (here you will find a hotel);

"Thað er ekki slæmt" (it is not a bad one).

But the hostelry followed the rule of all such civilised appliances in these regions—failed, and was sold to a Norwegian house. It fetched \$6000 (rixdollars), and was a good bargain to the purchaser; various debts were recovered, to the tune, they say, of nearly double the value. It is too big, the ceilings are too high, and the windows admit far too much air.

The most characteristic part of Reykjavik are the suburbs of the Tómrthúsmenn,¹ or empty-house men, mostly fishermen who have no farms, and consequently no cattle. We will visit the

¹ Tómr, empty, is the Scotch "toom."

west (not West) end built between a swamp abutting upon the sea, and the normal knobbed meadow-land, where a few cows fight against starvation. It is cut by a bit of made road, and another runs east to the Laxá or Salmon River—these are the only Macadams in the island. The by-streets of our suburb become mere lanes, and the *impasse* is far more common than the thoroughfare. The few good houses of wood are raised upon foundations of basalt or brick laid edgeways, which keep out the damp like the piles of Fernando Po. They are entered by dwarf ladders, instead of the usual sandstone flags imported from abroad. These “magalia” will float off to sea unharmed, like Gulliver’s cage, and not break up for a long time. The empty-house men, who far outnumber all the other classes, adhere to what represents the Irish shanty, the cabin of the Far West, and the Eskimo’s earth-covered hut. The primitive fashion, preserved even in the capital, is an oblong parallelogram of basaltic blocks, alternating with peats by way of mortar—*cespite pro cemento adhibito*—where tons of mussels and shell-fish¹ cumber the shore. The houses look as if shoving shoulders together against the wind, rain, and snow. The walls are sunk in the surface to the extent of a few feet, beyond which the ground is never frozen;² they are raised three or four feet high, with the same thickness as at the base, and battering a little inwards. One of the short ends is left open for a doorway; sometimes additional defence against wind is secured by a side-adit, a small, wooden, pent-roofed sentinel, like the office of an East Indian tent. This shell supports an acute-angled or equilateral triangle of wood: formerly birch boughs were used, now pine planks are largely imported from Denmark, as we see by the stacks scattered over the settlement. The steeply-pitched slopes, revetted with peat sods a foot square, yield a superior crop of grass—a hint of what may be done by “scalping” and draining. The gable generally shows the wood well daubed with blistering tar, which soon turns red and rusty; here are mostly two single-paned, white-framed windows, the larger

¹ I particularly remarked the beautiful shell, striped white and brick-red, the Hörpu-diskr, *Pecten Islandicus*, or Iceland clam. The krákuskel, or *Mytilus edulis*, is eaten by foxes.

² Native authorities differ as to the depth where frost extends. I heard a maximum of eight feet, even in the lowlands.

one lighting the gun deck or lower floor, and the smaller the upper deck, loft or garret. The old chimney was a tub; now there is an iron tube or a square pipe of bricks: a cowl like a "fly-cray," two bits of flat wood attached to a perpendicular, and moving with the wind, cures smoking; and where there is a weather-cock, it is the bird that warned Peter of his fall. Some of the larger establishments will have four or five of these pointed gables; and the smaller are often so small that we admire how human beings can get into them.



COTTAGE IN REYKJAVIK.

The characteristic building of the fishermen's quarter is the Hjallr,¹ or "wind-house," acting like the Skeo of the Scoto-Scandinavian islands; which, however, is a mere shed of dry stones. Here it is mostly an open cage of wooden uprights and stretchers, roofed over against the weather—a superior style of drying fish,

¹ The word Hjallr, the Færoese Kíadlur, is akin to Hjalli and Hilla (English hill), a shelf or ledge in the mountain-side, and hence a scaffold; the full term for the fish-shed is Fisk-hjallr (Cleasby).

especially cod. The body is either hung upon a line (*hengi-fiskr* or *flattr-fiskr*), or salted and stretched upon a rock (*harðr-fiskr*).¹ When dry and ready for embarking, it is heaped up on the beach and covered with stone-weighted boards. Even more unpleasant features are the vats and pits in the ground, where sharks' livers² and cods' sounds and bladders are left to form, with the addition of a little iodine, cod-liver oil. After this we cannot complain of the salting operation, done usually in some old ship's tank.

The beach is the normal scene of a European fishing village, a chaos of anchors, old masts and spars, nets and wooden floats, clothes and waterproofs hung up to dry; blue petroleum barrels from Scotland; big piles of wrack-thatched turf, and drawn-up boats, the sails being left, whilst the rudders are taken home. We see some three carts in one place. Travellers in the early nineteenth century tell us that not even a wheelbarrow can be found at Reykjavik: now hand-carts stand in every business street, and at times a carriage drawn by two ponies, and full of people, attracts every head to the window. When the made road shall be prolonged east and west, the settlement will become civilised, as our Accra on the Gold Coast.

The rude succedaneum for the wheelbarrow, which still lingers even at Trieste, is a straight stretcher carried by two men. But the race is thoroughly unmechanical, as we might expect from its social state. A local philanthrope gave one of the peasants a small sledge, to save him from trudging under a heavy box over the deep snows; the consequence was that the box was slung to the back, whilst the sledge depended down the breast. This reminds me of S'a Leone, where a British negrophile sent sundry wheelbarrows for the benefit of the "poor black" navvies: the barrows were duly filled with earth, and hoisted

¹ Henderson confounds the "Klip-fish" (Danish, *Klippe*, a rock), which is cleaned, salted, and stacked, with the stock-fish or dry-fish, simply split, washed, sunned, and turned by the women. The latter forms the national staff of life, and is not exported. "Fiskr" in Icelandic is especially applied to cod, trout, and salmon.

² The Maskat Arabs eat shark-meat, but they never apply the oil to the skin, considering it a caustic; rubbed into ship bottoms, it is supposed to defend the wood from worms.

upon the negro's head, where he wisely carries everything, even his toothpick. Many of these fishermen have been sailors, and the chances are, that if the Cockney traveller chaff them with, for instance, "How did you leave the old 'ooman?" they will straightway reply, "A' right, s'r!" They touch their hats as strangers pass, but this patriarchal custom will soon disappear before the presence of steamers. The children clamber about the boats, and swing by cords from the masts even as Bedawin boys play upon camels' backs; they toss up with fish tails; they chase the black cats like the denizens of Lilliput-Land; they bully the dogs, and they harness a pig on the rare occasions when one lands. "Gi' me a skilling!" the "Gie me a yap'ny" of Wales, is sometimes heard—in fact "bakhshish" is not utterly unknown in these hyperborean lands. Yet it is only fair to confess that not a single professional beggar is to be seen at Reykjavik.

Our hunt for lodgings ended in a short and sharp run in. A young Englishman, who had spent some time here, led us ashore. After rejecting the noisy tavern, and vainly seeking shelter at the Hospital,¹ whose civil matron was once the handsomest woman in the island, we presently found cover under the roof of Frú Jonassen, sister of Geir Zoega, the guide, and married to a Dane, whose over-affection for Bacchus confines him mostly to his couch. The house deserves description: it is the normal bourgeois dwelling-place of the capital, very different from that of the country. The little box is revetted with rhubarb-coloured boarding, and covered by a black tarred board-roof. Its entrance debouches upon a hall no bigger than a bird cage, with a door to the right and the left; you must duck head as you enter them, and—never forget this precaution in Iceland. The first *pièce* is a bedroom some 15 feet long by 8 broad and 8 high; the single window has a half blind, but neither curtains nor shutters. Strangers complain loudly of such an unnatural thing as the broad glare of day at midnight, and indeed the effect of a horizontal sun, impinging upon the ground, is not very unlike the noon of

¹ There was one corpse at the Hospital; the death had been caused by delirium tremens.

an English November. At first, we envy those on board ship who can darken their cabins. Sound sleep is difficult under the stimulus of light which allows you to read the smallest print; presently we secure it by hanging up one of the dame's flannel petticoats. The people, and especially the children, seem to take their rest at and till any hour: the maternal admonition "Ten o'clock, go to sleep" is here unknown; the "early to bed" of the proverb, and the doctor's dictum about the benefits of slumber before midnight, are clean forgotten. I puzzle myself to divine how a Moslem would time his prayers in Iceland.

The bedroom contains two apple-pie-shaped box-beds, some three feet long, which startle the traveller till he sees them drawn out; they are covered with the familiar eider-down coverlet of Germany, under which you may perspire and freeze to your heart's content: no wonder when, next to hare's fur, it offers the greatest obstacle to heat-transmission, consequently you always kick it off. Presently we shall exchange the vile eider-down pillows and coverlet for a clean waterproof blanket, and dislodge our pests by means of the insecticide powder invented in near Dauphiné, and consequently derived by commercial humbug from distant Persia. The "B flat" at once put in an appearance, and the people accounted for it by some German musicians having lately been their lodgers: we afterwards found that the pest is not indigenous, and similarly it has been imported into the Færoe Islands from Copenhagen. The livelier animalcule is well—too well—known. The sitting-room inside is also wainscotted, and of the four shutterless windows, only half of one is made to open; they are never doubled, which shows that the cold cannot be intense; yet at times the wind must whistle through them as through a summer-house.

Each room has a stove, backed by a blackened wall, the best are the tall German cylinders, and fire is the *côté faible* of the capital. A little heap of peat smoulders in the kitchen behind the bedroom, and thus hot water, a prime necessary, is very scarce. The furniture consists of a central drugget, a round dinner-table, a square writing ditto, a work-table, a commode, a tall armoire, and sundry horsehair chairs, with a sofa, which

must often act bed. In the rear of the kitchen is a microscopic pantry wherein it is not good to peer. Above us, a grenier occupies the sharp angle under the roof; here the family lives; and there is no sleep between 6.30 A.M. and 11 P.M.; they seem always to be clearing the decks for action. At the back of the house a yard reeks with impurities, and on both sides cages for drying fish give the well-known ancient smell. That human beings can live and enjoy health in the "stified filth" of Damascus; of Mile-end, Old Town, or of Trieste (Città Vecchia), argues, they say, peculiar excellence of climate, and the deduction certainly applies to Reykjavik.

The comely middle-aged dame, who speaks a few words of English, has no children except those whom, after popular Icelandic fashion, she has adopted. An aged Cinderella, a bundle of waste dry-goods, hardly human, haunts the kitchen, whilst Christiana, an artificial daughter of the house, is the Kellnerin. She is a good-looking lass with the fresh complexion and the *blond cendré* hair, one of Iceland's charms, which are here the rule; her dress is fine Wadmal of dark colour; and her large feet, which terminate solid supporters, are encased in the island slippers, giving a peculiarly lumping tread: a bright plaid apron and a grey woollen shawl for visiting, complete her toilette. She never knocks at the door and she slams it with a hideous noise—the neat-handed Phyllis and the light fantastic toe have not yet come so far north. When serving us she ejaculates mechanically "Værsgu," the Danish "Vær saa god"—be so kind—extensively used throughout Scandinavia, and now imported into Iceland. Mightily dull of apprehension she appears, especially after the sharp-witted Syrians, and the dialogue with us Anglo-Indians is frequently as follows:

"Here you, Kitty, heitt vatn. . . . Why, you don't know your own language! Water hot!"

Answer passive and stolid: "Hvað?"

"Oh what a girl you are! Samajtá? You almost deserve to have a vote. I say, 'water hot!'"

"Hvað segið" (what say ye)?

"Will you have a drink, Kitty? Where's mamma? Hot WATER, I tell you."

“Hvað segið thèr” (what do you say) ?

And so forth, *ad infinitum*. Yet in Iceland Jomfru (Icel. Jungfrú) Christiana is the gem of a waitress, and in her leisure moments she will act *bacheliere ès lettres*—in fact, she readily adapts herself to our little bachelor ways.

Frú Jonassen agrees to lodge and find us in “small breakfast” or early coffee, and big breakfast at ten A.M., for \$1, 3m. Osk. (say 3s. 5d.) per diem, and for an equally reasonable sum to house our spare goods when travelling. Washing is of course cheap where there are so many feminine spare hands.¹ The tea is vile, having been drunk at least once. Water is almost throughout Iceland excellent, cold, clear, and slightly flavoured with iron, like the sparkling produce of the Haurán and other basaltic lands. Coffee and brennivín (schnapps) may be called the national drink, and the people pride themselves upon the former: after our senna-like potions farther south it is admirable, but it must not be compared with that of the nearer East. The bean is never good, even England cannot afford the true Mocha monopolised by the United States: still it is never stinted,² and it lacks the odious *chicorée* so popular across the Channel. It is burnt black instead of brown as in Arabia; it is milled in lieu of being pounded, and the brew is made in a venerable flannel strainer-bag placed where the kettle’s lid should be. The consumption is even more extensive than in Germany: large cups and sometimes bowls are served strong and hot several times a day, and are always offered to the stranger guest. Some find fault with the excess, but they forget that coffee prevents waste of tissue, and that a heating drink is necessary in cold, damp climates where the diet is poor. The sugar is white loaf, and the cream thick as curds, we never see such luxury in England;

¹ The “boiled shirt” costs 12 skillings = 3d.

Flannel ” 8 ” = 2d.

Socks and collars ” 3 ” = 1½d.

Kerchiefs and white ties 2 ” = 1d.

You must be pretty careful, however, unless you wish your linen to go the way of all washing in all lands.

² I was once asked at an English country-house to show how coffee is made in Arabia; the housekeeper’s only remark was, “It is easy to make coffee like Captain Burton if one may use so much!” But the Arab system, though simple as it is scientific, cannot be learnt without long practice.

sheep's milk is kept for cheese, and Reykjavik ignores the national Skýr.

At seven A.M. we have *café au lait*, rusks, white bread and brown, or rye loaf, which we all prefer. Breakfast is substantial as in northern Scotland. The staple is fish, notably cod, boiled or grilled, but all poor, small, and watery: a "head and shoulders" equal in size or flavour to those of our own country is rare as the *Spatium admirabile rhombi* farther south. "Tout ce qui vous plait—mais pas de poisson" is the frame of mind which soon follows pure ichthyophagy. Meat is always mutton, the liver and kidneys being apparently preferred; "Carnero no es carne," says the Gaucho, and at last we sigh for the Murghí (fowl) at which the Anglo-Indian turns up his sybaritical nose. Hens' eggs are equally uncommon; those of the eider-duck, boiled hard, are rarely wanting at this season. They are about as large as turkeys', with dirty-green shells, and very white albumen; the stranger enjoys them at first, but, like the Pallo fish of Sind and the "palm-oil chop" of Guinea, they are too rich; they pall upon the palate, and they are pronounced to be rancid and *gluants*; besides which they are rarely quite fresh, the one virtue of an egg. Potatoes are not always to be had; those grown in the island are waxy and taste like soap; the best are imported from Denmark and even these cannot be praised.

It must be observed that the Reykjavik lodging-house has a great advantage over that in England, which exists by petty overcharges and by small robberies. Here also a strange tongue and foreign habits conceal that fearful caricature of "society" ever prominent at home. The chief bane of poverty is not so much that it renders man ridiculous, as that it brings him into contact with a life-form of which only Mr *Punch* can make fun. I envy the *richard* in civilisation only because the talk of the Vestibule does not reach the Peristyle: his wealth removes him from all knowledge of what is going on within a few yards of him, the mean jealousies, the causeless hatreds, the utter malice and uncharitableness which compose "high life below stairs."

By way of simulating civilised existence we converted the tavern into a club, and dined there daily. It is the usual little

board-house in the High Street, and the northern wall backs a couple of trees some five feet high, the Sorbier, or service apple (*Sorbus aucuparia*). Another may be seen in the governor's "compound," but apparently one-half of it has lately paid the debt of nature. The dining-room is a stuffy little box, and it is useless to open the windows as they will at once be shut. Often some unwashed and burly traveller from the country precedes us for a feed; a sewing-machine awaits our departure, and we are serenaded by the monotonous croon of the nurse above. Sometimes she breaks out into "Champagne Charley," with the true British "rum-ti-tiddy" style of performance. The capital has evidently forgotten the "beautiful lullaby," *Ljúfingsmál*, composed by a calf-father, and sung at the window; but we have an abundance after this fashion:



Et sic ad infinitum.

On the other side of the hall is the drinking saloon, and beyond it the billiard-table, a highly primitive affair in which the slower balls describe graceful segments of circles: the Russian game is the favourite, and "the price is a penny—it is no more." The dingy little room is mostly crowded in the evening, peasants and visitors in rags act wall-flowers, whilst the *jeunesse dorée* performs in the centre—yet note that neither Kirkwall nor Lerwick owns a billiard-room. Groups gather at the tavern door, and there is more life than usual in the High Street. Women flock to the large pump and bear away their full pails with a square fender of lath, like a falconer's cage; the long bearded and ragged water-carrier is a local *curio*, and the one carriage sometimes passes. Young ladies, escorted as in France by the *bonne*, troop by to shop or to pay visits; and now and then an "Amazone," very unlike her Dahoman sister, ambles by on her little "sheltie."

The proprietor of our club was Hr Jörgensen, a Dane, formerly valet to Count Trampe; he began by hotel-keeping at the Hospital, but when that failed to keep him he wisely took the pot-house which paid well. He was an independent landlord, disdaining to tout for new comers, and not even advertising himself by means of a sign-board: in fact, he cared for nothing as long as he could tap a barrel of beer per diem. At the end of the season he sold the house and goodwill for \$12,000 to Mr Askam, a Yorkshireman, and returned to his native country a "warm man."

You dine at Hr Jörgensen's *café beuglant* for the very moderate sum of one rixdollar per diem, including even coffee and *petit*



THE ANGLO-ICELANDIC HOST.

verre, but not including the "cheap Gladstone" which would be distasteful to the Oinomathic Society of Edinburgh. The hour is three P.M.; you fight for five with the good-tempered mistress and often you lose the battle. Appetite is never wanting near the North Pole, and Reykjavik is a thirstier place, the result of evaporation, than even the banks of Brazilian São Francisco. High spirits, fine air, and free ozone—if such a thing there be—are proof against the excessive greasiness of Icelandic cookery where, however, it must be owned that melted butter now takes the place of tallow. The people have learned the use of salt, which formerly they ignored like the Guanchinets (Guanches) of Tenerife, not to say islanders generally: it is hard to see the hygienic value of the condiment amongst eaters of fish and meat,

however necessary it may be to a vegetarian race like Brahmans and Banyans. Icelanders still prefer spices: the nutmeg, clove, and cinnamon which are mixed, in place of pepper, with sorrel or scurvy-grass (*Rumex acetosa*); and the sugar which is added, even to cabbage, gain for the cook anything but our blessings. Rice pudding with a sauce of currant jelly and water by way of molasses or the Syrian "dibs" (grape-syrup), often after the fashion of Dotheboys' Hall, precedes soup, and the latter is not rarely milk-soup, or Sod Suppe, the sweet broth of Norway, a slab compound of sago, dry cherries, raisins or plums, coloured with the juice of the imported Tyttebær, *Vaccinium myrtillus* and *vitis-idaea*; the Blåber of the Færoes and our own bilberry or blaeberry, red whortleberry or cowberry.

The salmon is excellent, firmer, finer, curdier, and leaner than with us; unfortunately it is cut up into slices. We make ample acquaintance with Australian and other preserved meats, and as might be expected, we find baking in lieu of roasting which seems now almost confined to England—the *rationale* of the regrettable change is that it saves fuel. The cheese is certainly not from Cheese-shire; it is about as good as bad Gruyère: there is a dark sweet stuff called Mysust (*mysa*, whey, and *ostr*, "yeast" cheese), made of pressed curds, which the traveller will certainly not prefer to the Gammell ost, the "old" or common cheese of Denmark.

There is a tolerable beer misnamed Baiersk (Baerisch), and imported from the Continent—I do not know where Metcalfe learned that barley brew is made at Reykjavik. The Schoppe costs threepence, whereas the Rödvin, or Vin-de-pays, much like vinegar, and by courtesy called claret, fetches five marks or nearly a rixdollar per bottle. The people avoid the ancestral ale because it is supposed to give neuralgia, and prefer "Brazilian wine;" here Brennivín, korn-schnapps, or rye brandy which is always drunk raw. English travellers declare that they cannot enjoy it on account of the harmless, or rather the beneficial, aniseed with which it is flavoured: so Sir Charles Napier, the sailor, ordered casks of Syrian Raki to be started overboard because it must be poisonous, as it whitened the water—simply the effect of the condiment. The sensible traveller will prefer this unadulterated

spirit to the vile potato brandy from Canada, coloured with burnt sugar and perhaps flavoured with an infinitesimal quantity of mother-liquor, the impostor which now passes itself off to the world as Cognac.

The tavern and *table d'hôte* have now passed under the rule of Jón Zoega, No. 7 High Street, and his pretty wife works hard to secure a clean house and good cookery. The stranger on landing should at once ask for the "head guide," Geir Zoega, who can always find bed and board at his brothers or his sisters. Other lodgings are by no means so comfortable, especially those fronting the ditch, by courtesy called a canal.

The day at Reykjavik is simple. Sleep is sound as appetite is hearty, and assimilation of food expeditious. When the infantry overhead opens its eyes, you proceed to the "chhotí házirí" (little breakfast), and you pass the time in reading and writing till the real affair about noon breaks the neck of the day's work. A visit or two and a long walk land you at the dinner hour—there is no better plan for the student-traveller than to make himself thoroughly familiar with a single section of the country which he is learning, so that during his field-work he may confine himself to the observation of differences. After dinner—at five or six P.M. if possible—another and a shorter walk, weather permitting, prepares for a few hours' reading before bed-time. The monotony may be varied by picnics and excursions, gun or fishing-rod in hand, more, however, for the sake of doing something than in view of sport. Were I a Reykjaviker my rule would be to hibernate, to be "bedded in," during the eight months of cold season:

" Me levant tard, me couchant tôt,
Dormant fort bien ;"

and to be "potted out" with late spring, so as to pass as much as possible of the summer wide-awake and in the open air. Yet winter here is the "season," the gay time, when balls last from six P.M. to six A.M.; and "society" at the capital apparently looks forward to the "disease of the year."

CHAPTER IV.

SUNDAY AT REYKJAVIK—DRINKING IN ICELAND.

Sunday, June 9.

THE Iceland Sunday begins at six P.M. on Saturday, and ends at following six P.M.; this precession is the case with the days in general; thus Sunday night here is the Saturday night of Europe. Apparently Scandinavia is the only part of the Western World which preserves a chronometry directly imported from the East. We find it everywhere amongst Jews and Moslems; and Genesis (i. 5) tells us that Arab or Gharb (evening) and Bakar (morning) formed the first day or period before the sun came into being. The old Germans and Gauls computed, we know, by nights, and not by days; and the Teutons probably borrowed it from the Celts: it survives amongst ourselves in such terms as sen'night and fortnight. At Reykjavik we distinguish the "Sabbath" by the amount of flying bunting; every store has its flagstaff, and the merchants as well as the consuls claim a right, as in the Brazil and Zanzibar, to sport their colours, which are, however, always Danish. The "church-going bell" begins to ring, and the doors to open, about 11.15 A.M.: the people much prefer the lively measure of their own summons to the monotonous system of England, whilst the chimes of the Royal Exchange, a national disgrace, provoke their contempt. Service does not commence till near noon, the usual time in the island where many of the congregation have long and rough rides.

The Dómkirkja (cathedral) in the Austurvöllr has often been described externally and internally; the "Napoleon book" and others, however, make it all of stone instead of being partly brick. The older basaltic building may be seen in Mackenzie, and the last additions bear date A.D. 1847. Its outside is shabby as the

People's Palace at Sydenham; the unclean yellow plaster has fallen from the distempered walls, the result of mixing salt sea-sand with the mortar; and the same is the case with the College and the College Library. "Rispettate la Casa di Dio" should be writ large upon every corner of this nondescript. A clerestory, with double windows, partly stained, those on the ground floor being single; a low-tiled ridge for the chancel; a higher pent roof for the nave and aisles; and a tall wooden tower, revetted with boiler-plate, compose what the polite call Gothic, the uncivil "Bastard Nothing." Utility is consulted by a weather-cock and a clock, serviceable to regulate time where no gun, even for saluting purposes, must be fired, lest H.H. the eider-duck take fright. The front, which is turned west, with a highly orthodox regard for orientation, shows the three windows of Roman Catholic architecture; and the Lich-gate,¹ never wanting in



THE LICH-HOUSE, CEMETERY, REYKJAVIK.

Iceland, is the normal house-hall: it is flanked to the right and left by flights of steps leading aloft. And the roof is now water-tight.

¹ The lich-gate proper in the cemetery is, or rather was, called *Sálu-hlið*, or souls' gate.

The inside is better kept than the outside. The ambulatorium and wings are all hard benches, with stiff, straight backs, but not divided into pews. The upper galleries along the long walls are supported by square and round wooden beams and pillars; the tint is characteristic salmon-colour. Over the entrance is the succedaneum for the Narthex-gallery, an organ loft, a cage like that used for women in the Melchite churches of Syria. On the left side of the nave hangs the board showing the lessons of the day; on the other and outside the chancel is a pulpit, with gilt gingerbread work. The holy of holies is very Lutheran, the usual blending of Catholicism with Protestantism, which marks the first step when consubstantiation took the place of transubstantiation. There is an altar—not a communion table—surmounted by a full-length figure of the Saviour, with a sleeping disciple and a Roman soldier as usual unusually alarmed; its frame supports a cross, and the *tout ensemble* is an evident derivation from the Iconostasis or Rood-screen. Upon the altar, besides an open Bible and a chalice, with pall but without bourse, two brass candlesticks of ecclesiastical aspect bear lighted tapers, and eight medallions of the popular cherubim adorn the boarded wall. The railing is of brass perpendiculars, with wooden horizontals, and a cushioned step is knelt upon by communicants receiving the wafer. The gem of the building is the font of Bertel (Albert) Thorvaldsen, whose features, figure, and character prove him, though not born in Iceland, to have been essentially an Iclander.¹ The font has been described as a "low square obelisk of white marble:" it is the ancient classical altar, with basso-relievos on all four sides, subjects of course

¹ According to Professor J. M. Thiele (Copenhagen, 1832), he was descended on the spindle side—where, by-the-by, almost any descent can be established—from the royal blood of Scandinavia. The family, once settled at Öslandshliff in Skagafjörð, sank, and his father Gottskálk emigrated to Copenhagen, where he lived by carving figureheads for shipwrights. His mother was a clergyman's daughter, and he was born November 19, 1770. Finn Magnússon (*Antiquitates Americane*) has also drawn up his pedigree.

His first order from his northern home was, according to Thiele, a font which Countess Schimmelmänn and her brother Baron Schubarth wished to present to the church of Brahe-Trolleberg in "Funen," as we write Fyen. It was adorned with four bas-reliefs—the Baptism, the Holy Family, Christ blessing the children, and three angels. After being exhibited and admired at Copenhagen, it was sent to its destination, and a copy, we are told, was offered by the artist to the deserted land of his forefathers, to be placed in *Myklabye church*. A note informs us that this font was bought by a northern merchant, whereupon the artist immedi-

evangelical; on the top an alto-relievo of symbolical flowers, roses, and passifloræ, is cut to support the normal "Döbefad," or baptismal basin. Some have blamed its un-Christian shape, without taking notice of its use; others have reported that the inscription has been erased; unhappily we still read such latinity as "TERRÆ SIBI GENTILICLÆ . . . DONAVIT." The sacristy contains some handsome priestly robes, especially the velvet vestment sent by Pope Julius II. to the last Catholic bishop and martyr (?), Jón Arason, in the early sixteenth century, and still worn by the chief Protestant dignitary at ordinations. All have been carefully described: they reminded me much of the splendid vestments displayed in the Armenian convent at Jerusalem during Holy Week, and of the specimens of old embroidery, of rich stuffs, rare and interesting, that are worn at certain parts of the Protestant service by the officiating clergyman of Transylvanian Kronstadt. "It is a strange contradiction," says Bonar, "to the spirit of Lutheranism; and the rich, almost royal, robe ill accords with the studied plainness of the other parts of the dress, in which is not a trace of colour, of flowing lines or beauty. But the dissonance to the feelings is greater, for one could not but feel it as such, to see the magnificent chasuble which the priest had worn at the altar—so highly prized as only to be used on the most festive occasions—now employed for some everyday purpose unconnected with any holy mystery."

ately began another in Carrara marble. It is not said whether the third edition actually reached Myklabye church or is the one bought by Lord Caledon—evidently we have found it in the cathedral.

The "Patriarch of Bas-reliefs," as the Italians entitled him (ob. 1844), has been called a "handsome young Dane," when he was peculiarly Icelandic in body and mind. It was his misfortune to belong to the day of manufacturing sculptors, amongst whom he was the first and no more. But what can the artist expect from such inspiration as Jason, Anacreon and Cupid, Mars, Bacchus, Apollo, can give? The Icelander was pure and simple, free from the Gallicisms of Canova, an improvement upon Sergell the Swede, but cold, lacking life and interest; in fact, an imitator. I would rather in these days settle as an artist amongst the Kru-boys of the west coast of Africa, and attempt negro subjects, than copy the classics.

Richard Cleasby, who, by the by, killed himself with Cures, or rather Kurs, had a wide experience of men and manners in Europe, and his criticisms are sometimes sharp, but he left Thorvaldsen "with the impression of having been in the company of a great man." The peculiar Icelandic traits in his character were an ultra-Yankee cuteness in making a bargain, and a love of money, which led him into that ugly business of Madame d'Udden. Still he amply deserves the statue for which the Municipal Council of Copenhagen has voted \$6000, in honour of the Iceland Millenary.

Six votive tablets of silver metal hang against the wall, in memoriam of departed dignitaries.

Presently enters the Rector, Hallgrímur Sveinsson, attended by Súra Guttormr, a candidate for ordination. He has walked to church in black robes, with the broad and stiffly-crimped white ruff, the Fraise à la Medicis, which is seen from Iceland to Trieste: the poorer clergy in the island, as in Norway and Denmark, do not use it on account of the expense. His close-cut hair and peaked beard give him the aspect of an old family portrait dating from the days of the Stuarts. Presently, assisted by a bustling clerk in a white surplice, he dons the purple vestment with a yellow cross down the back—it will be remembered that the cope and the vestment were long retained by the Reformed Church in England. Súra¹ Hallgrímur thus attired stands up and intones with rotund mouth and a good voice somewhat like a Russian papas: he has been seven years in Denmark, yet he speaks no French, and very little English. The congregation, which is certainly not crowded, first joins in a long, a very long, hymn; after this come the prayers of the Lutheran rite; and finally, a thirty-minutes sermon for the benefit of the noddors and the noddees. The service lasts at least two hours, therefore the people rarely sit through it: the men especially disappear for a few minutes, and return when they please with a faint aroma of tobacco, which no one remarks; whilst many strangers see it through by instalments. The governor, who was visiting, did not attend, nor did the bishop, who was unwell.

The first aspect of the congregation was a novelty, especially after reading sentimental descriptions of man, whose “*œil est pensif; son attitude nonchalante et sa démarche engourdie,*” and of woman, whose “*traits respirent la douceur et la resigna-*

¹ Súra is more commonly, but not so correctly, written *Séra*, and by foreigners *Sjera*; and I have heard it pronounced *Sjera*. It is a Romance word, originally Senior, hence Seigneur, Signore, Senhor, Señor, Sir, Sir-r (Richardson), Sirrah, and “Sir-rec.” Icelanders still keep up our fashion of Shakespeare’s day, and apply it to clerks with the Christian name only, as Sir Hugh. *Magister* was the university title of the M.A. in our fifteenth century: *Dominus* (the Dan of Chaucer and his contemporaries, and the Don of modern Italian priests) was, and still is, the B.A., entered as Sir This or Sir That (the surname) in some of the college registers down to the time of Queen Anne, and, I believe, even in our day. Hence, possibly, the origin of the French Sir Brown and Sir Jones.

tion." The latter are naturally far more numerous than the former; firstly, the ceremony is in their line, and secondly, they preponderate in the population. They mostly affect the left aisle, whilst both sexes are mixed in the right. Few of the men sport broadcloth and chimney-pot hats; and these latter, when worn, are mostly of the category known as "shocking bad." The usual habit is a Wadmal paletot, the creases showing "store-clothes," and a billycock or wide-awake; the students carry caps, and the general look is that of the Bursch, without his swagger and jollity. The distinguishing article is the "Islandsk Skór," Iceland shoon, of which I have deposited a specimen at the rooms of the Anthropological Institute. It is a square piece of leather—sheep, calf, seal, or horse—longer and broader than the foot; the toes and heels are sewn up, the tread is lined with a bit of coloured flannel, and the rim is provided with thongs like our old sandals. It corresponds with the Irish "brogue," as shown in heraldry; the Shetland Rivlin, or Rullian; the Revlens or Revelins of the Scoto-Scandinavian islands; the Red Indian Mocassin; the Pyrenean Spartelle; the Zampette of Sicily; the Roman Cioccie; the Opanke of the Slavs; and the Mizz, which Egypt and the nearer East, however, are careful to guard with papooshes. It is one of the very worst *chaussures* known; it has no hold upon snow; it is at once torn by stone; being soleless, it gives a heavy, lumping, tramping, waddling gait; it readily admits water; and being worn over a number of stockings, it makes the feet and ankles look Patagonian, even compared with the heavy figure. There are a few specimens of "Lancashire clogs" from Denmark and the Færoes; chumpers or sabots are unknown; and the civilised bottine is not wanting.

The women at first sight appear tall compared with the men, but not so notably as in the case of the little Welshman and his large wife. They are, as they should be, better looking than their mates, whilst the chubby and rosy children are better looking than their mothers. The expression of countenance is hard and uncompromising. We involuntarily think of "those chilly women of the north who live only by the head;" and they gorgonise us into stony statues. Regularity of features is hardly to be expected so near the Pole. Even amongst the Ger-

man races we look for complexion and piquancy to take the place of that classical beauty which is exceptional beyond the lovely Mediterranean shores. The congregation showed many a pretty girl, but not a single face that would be remarked farther south. The hair is admirable, and requires no chignon—the invention



ICELAND WOMAN—SUNDAY WEAR.

which conceals the Englishwoman's chief defect, her *capigliatura*. It is either *blond-cendré*, dark red, or light chestnut-brown, as in older Denmark; farther south, but not here, brown-black is by no means a rarity. Plaited in two large queues, which hang down the back at home, it is gathered up when abroad under

the Hufa or cap. This article is a caricature of the Fez, as the Skór are of the Mizz, and it has every defect except that of ugliness. The material is elastic black web woven by the women. The old style is to wear it large, like the night-cap of former days: the juniors prefer a mere apology for head-cover-



ICELAND WOMAN—MONDAY WEAR.

ing, much smaller than the thing now called a hat in England. It is provided with a Tuskana, a long tassel of black spun silk brought from Copenhagen; and the latter is ornamented at the base by a short cylinder (Hólkr) of silver, gilt-silver, or brass made in the country. This tassel serves for not a little by-play;

usually it depends upon the right or left shoulder indifferently, but when bending, for instance, it may be held under the chin for coquettish contrast of colours. The whole affair, which costs some six rixdollars, is kept in position by hair-pins, and, as it gives no protection against cold, it is covered out of doors with a shawl, mostly grey, striped white or chocolate; in fact, women rarely leave the house, even in what we consider warm weather, without being muffled to the ears; and the men are not less effeminate. There is only one specimen of the old Falldr or Skott Falldr (galeated cap), which seems to be growing obsolete; the day is windy, and this curved and

“ High-peaked head-dress of snowy white,”

which corresponds with the “Roide Cornette” of ancient Holland, and of which modifications may still be seen in Normandy, could hardly be worn. I shall reserve a description of the crested and helmet-like affair which strangers compare with a flattened cornucopia, with a cap of liberty, or with a dragon casque, ultra Amazonian: here let me merely premise that it is a larger edition of the Lapp head-dress; that, within the memory of man, it was worn in the Orkneys; and that the whole costume somewhat resembles that of the Oberland Bernois. The few hats and bonnets accompany more modern attire, and even the crinoline and the Dolly Varden are not wholly unknown. In Iceland dress denotes the station; in Europe it is only the most advanced society that escapes from this outward show. The sensible Yankee travels in his “Sunday best,” because it procures him respect and attention where he is unknown; we reverse the rule, and notably so on “the Continent”—which is uncivil and breeds incivility. Most of the elderly women are in black Wadmál; the juniors prefer fine, dark bottle-green stuff, with plaid or rainbow-coloured aprons. I at once remark the absence of the γυνή πυροστόλος, called “bussle-wearer” by our grandmothers. Those in the island-costume wear a narrow band of gold embroidery round the skirt, which resembles the costume of the Slav women about Trieste. The bosom is no longer flattened as much as possible—was this the result of a savage decency

which taught the sex to mask nature? On the contrary, about the middle of the jacket a *souçon* of white chemisette is now allowed to peep forth. But these coy dames have still to borrow a hint from the young Irish person who wore

"every beauty free
To sink or swell as heaven pleases."

"Sabbath" in the "moral north" passed away as usual. The respectables, masculine as well as feminine, sat at the windows opposite one another, the former smoking vile Hamburg cigars, the latter devoting themselves to the serious and exhaustive study of street scenery. The German mirror placed to reflect the thoroughfare is still a rarity, and therefore the prospector must display herself as *chez nous*. The commonalty leaned against the walls and railings, much like the Irish peasantry of the present day, whose poetry, wit, and humour, once so famous, appear, like art in Italy, to have been crushed out of life by a generation-long course of "patriotism," politics, and polemics. There was a little more apparent drunkenness than usual, men staggering about, peasants supporting one another, and all jostling whatever they met in the streets. This unpleasant process of "rubbing up" seems to be here the rule, and we can hardly complain of it when we remember the lower orders, and not only the lower orders, of the Lowland Scotch: as the Yankee is the Englishman with the weight taken off him, so here the people, like the scenery, are Caledonian intensified. In the evening, thus to speak, when the dissolute sun, instead of keeping the regular hours of the tropics, does not turn in before eleven P.M., the sexes paired, and one gentleman accompanied his "lady" in carpet slippers. The day ended without a brawl. On St Monday, however, there was a tavern quarrel, when one of the strongest men in the town had his face cut open by a stone. We were assured by all that such things are very rare. Yet on the following Wednesday one of the couthless Calibans from the country, whom tangle-leg had made "drunk as an auk," thinking that he was derided by a party of Englishmen, slipped up behind one of them and hit him a rounder, in popular parlance a "regular slogdolager." The Briton, thus unexpectedly assaulted, soon recovered him-

self, and, though the peasant bundled away, rolling like a bolt-
ing bear, Mr A—— succeeded in lodging a couple of sound
lashes with his horsewhip. A small crowd gathered; of course
it took part against the strangers, and a free fight became im-
minent. This was prevented by the chief constable, whose
badge is the tallest hat I ever did see, and who commands a



THE HEAD CONSTABLE.

body of three men, armed with the "Northern Star." When
appealed to, however, the dignitary distinctly refused to take his
fellow-countryman into custody; hence, perhaps, the freedom of
the jails from jail-birds, a peculiarity strongly insisted upon by
complimentary writers, and quaintly corresponding with our
"gratifying diminution of crime." This is not what we read

about Iceland and the Icelanders. It of course will be said that fair time is approaching, and that we are at Reykjavik, a centre of dissipation, where men are eagerly looking forward to the arrival of a grind-organ.

This appears to be the place for inserting a few remarks upon the subject of drinking in Iceland compared with that of England and Scotland. I had asserted in the *Standard* that "more cases of open, shameless drunkenness may be seen during a day at Reykjavik than during a month in England and Scotland." A gentleman interested in the matter writes to me: "According to the only official returns of Icelandic statistics ('*Skýrslur um landshagi* (resources of the country) á Íslandi, gefnar út af hinu íslenska Bókmenntäfélagi,' Kaupmannahöfn, 8vo), from 1865 to 1869, the date of the last publication, the consumption of intoxicating drinks has been steadily decreasing. Thus in—

1865	the amount of 2 gallons 6½ pints were drunk per head.
1866	„ . 2 „ 1 „ „ „
1867	„ 1 „ 6 „ „
1868	„ 1 „ 4 „ „
1869	„ 1 „ 3 „ „

In 1869 the gross total used in the island was thus one gallon and three pints per head. In Scotland the consumption of spirits alone for 1870 was a fraction of a gill less than two gallons a head (Parliamentary return for 1870 relating to spirits, beer, and malt spirits), and in the United Kingdom one gallon a head. I have not been able to ascertain the quantity of wines consumed, nor the proportion contributed by the secret stills of Scotland and Ireland; but of beer and spirits together, the consumption in the United Kingdom was no less than thirty gallons per head per annum. You must remember that the Icelanders have no spirits equal in strength to whiskies and French brandies. You must also remark in connection with the drunkenness observed by you at Reykjavik that you were there during the trading season, when people flock to the capital. They have not tasted, perhaps, a drop of intoxicating liquor during nine or ten months, and they make up for their sobriety by a fortnight or so of indulgence. I have known several peasants who bought a keg of Danish brandy at the trading-place, and who made free use of it

during their homeward journey, and as long after as the supply lasted. Then they did not taste a drop till the next season, for the very good reason that they could not get it. It would therefore not be quite fair to state, as a general condition of the Icelanders, what might be observed at Reykjavik during the fair, from about the middle of June to the end of July. It would be equally unjust to show up the condition of Londoners on Boxing Night, or of the Scotch on New Year's Day, not to speak of every Saturday night."

To this I reply. In 1834 the consumption was only 2 bottles of spirits per head; on the whole, therefore, there is an increase. Between 1849-62 (Paijkull¹) the imports had increased 79 per cent., and in the latter year the consumption per head was of 6·7 Danish pots or quarts, when Scotland uses $1\frac{1}{2}$ gallons per head. Mr Consul Crowe (1870-71, p. 648) shows that the consumption is "about 24 quarts annually for every adult male, without counting ale, wine, rum, punch extract, and other spirituous drinks imported." My stay in Iceland lasted not till the end of July, but till September the first. I found drunkenness prevail not only in the capital, but in the farm-houses; and, as the trading stations and market-ships are now scattered all round the coast, there is no difficulty in obtaining spirits throughout the year. Since 1869, the practice has apparently increased with the growth of commerce. As regards the figures, they are like facts perfectly capable of misleading as well as leading. The statistics of a sparse and scattered population can hardly be expected to be correct; for instance, the fleet of French fishing vessels smuggles a quantity of cognac which does not appear in the returns. The Consular Report (1870-71, p. 650) adds, "The consumption of ardent spirits in the island is very great, being as 490,000 imperial quarts annually (or 490,000 : 70,000), and of this large quantities are landed by the foreign fishermen, who barter it with the natives for their fish and other raw produce." We all issued from the "Queen" with more or less whisky, about which nothing was asked or said; and this may counter-balance

¹ This author also tells us that Sweden annually produces 38,000,000 of pots of Korn-schnapps, of which 6,000,000 are used for technological purposes.

even the large produce of the "secret stills" existing in Ireland,¹ but rare in England, Wales, and Scotland. Also what is consumed in Iceland is almost entirely drunk by the men—I never saw that disgrace of our great cities, a drunken woman.

The actual state of things is not what is shown by the figures. An eminent Icelander openly asserted that he had dived into the gin-palaces of London and Edinburgh, yet that he had seen more drunkenness in a day at Reykjavik than during his whole visit to Great Britain. This comparison with a nation which derives £13,000,000 of revenue from spirits alone, and which has "drunk itself out of the Alabama difficulty," is telling. There have been repeated attempts to establish teetotalism, but none have succeeded—perhaps a whisky war might lead to victory. And here hard drinking is apparently a little reprobated practice. A party of English travellers lodged at the house of an educated man, who, fresh from a visit to Denmark, expressed the *dulce domum* and domesticity sentiment by loud and late striving in strong liquors. The same tourists engaged a guide, who kept himself sober during the march, but afterwards broke out in a way which prevented his re-engagement, sleeping *unter freien himmel*, and so forth.

That our vices like our virtues are regulated by our "media," no traveller can doubt. Thus in England, out of an annual total of 150,000 souls "drunk and disorderly,"² the number proceeded against in the south (not including London) was 3·2 : 1000; in the Midland district, 4·0 : 1000; whilst in the north it rose to the extreme ratio of 10·8 : 1000. These figures show, if evidence be wanted, that "as we go north drunkenness increases." The classical Scandinavian and the Northmen generally were deep toppers, quarrelsome withal; their wives always removed their weapons when they sat down to drink; and they looked forward to a Houri-lacking and *pro tempore* paradise, where the dead rode forth daily to cut one another to

¹ In 1872 no less than 1100 cases of illicit distillation were detected in Ireland, against 21 in England, and 8 in Scotland.

² The irrepressible statistician of the *Figaro* assigns annually to England 50,000 deaths by drunkenness, of which 12,000 are women; 40,000 to Germany; 38,000 to the United States; 10,000 to Russia (! !); 4000 to Belgium; and 1500 to virtuous France.

pieces, and rode back to gorge nasty boiled pork and swill vasty draughts of bilious mead. In the south, take Europe for instance, men hold wine to be the *ιατρειὸν ψυχῆς*, and prefer to over-nourishment gambling, or what we call immorality, in the confined sense of the word. Race, again, heredity and atavism, or the habits bequeathed by forefathers, modify climate: the Slav, for example, who occupies the same latitudes as the abstemious Turk and Italian, is a hard eater and wine-bibber. And I have a conviction that spirit-drinking is becoming common in countries where it was formerly almost unknown. During a late ride to Ronda in Spain, two drunken men were seen in one day, and three appeared at an Italian country-fair—these are instances out of many which might be quoted.

In England, on the other hand, drinking in society has been modified not solely, as we flatter ourselves, by better taste or by a "higher tone," but also by the increased use of nicotine—an axiom which will be grateful to the readers of *Cope's Tobacco Plant*, and unpleasant to gentlemen of the happily defunct Palmerstonian school. In the age of Queen Anne apparently all Englishmen smoked. The Continental war made the practice "un-English," and an increase of snuff was the result. At Oxford, shortly before I matriculated, some youth of heroic mould, who deserves a statue if any one does, lit a cigar almost immediately after the hall-dinner. He was called hard names, but he persevered, and he found imitators: the consequence was a notable curtailing of the "wines" which used to last from seven to eleven P.M. In 1852 I was objurgated, and not unfrequently cut, for smoking a manilla in the streets of London. Very shortly afterwards a ducal reformer spread his plaid under a tree in Hyde Park, produced a briar-root, and expected his friends to do likewise. I need hardly say that they did.

After this little experience of life, man will be careful how far he allows local custom to modify his comfort and his convenience.

CHAPTER V.

VISITS—CONVIVIALITIES—THE CATHOLIC VIEW OF THE "REFORMATION"—SURTAR-BRAND—THE HOME-RULE PARTY.

THE Reykjavikers may be distributed into four classes: the official, ecclesiastic, and civil; the merchants; the fishing-class; and the paupers. The visiting hour begins with noon. You open the outer door of the diminutive hall and rap at either side-entrance: but generally the left, otherwise the gynæceum may be sorely disturbed. The rapping possibly lasts for five minutes; the servant hears you or not, and if she condescends to open she usually stares, backs, and leaves you on the threshold. This class in Iceland appears to me the worst in the world—practical communists with the rude equality of the negro, worse even than the Irish help in the United States, or the servitor at Trieste, where the men are either louts or rogues, and the women are cheats, bacchanalians, or something worse. The domestic agrees to live with his employer for a certain sum, finds little to do, will do nothing but drink and be dissolute, refers frequently to the contract, tells the master, with true northern candour, to serve himself, and finally retires to the house of his brother's wife's third cousin. So the Greenlander gives warning by "Kasungong" (I am tired of you). Throughout the country it appears a dishonour to do household work. Most of the farms, even when in debt, have some article of the kind, but generally it is an aged and feminine body, perhaps connected with the family and liable to starve when turned off.

On the other hand, if after knocking you enter, there is probably a startled rise and rustle of petticoats, like a flushed covey of partridges, the home-toilette, as in the nearer "East," being the one all-sufficient cause. At this season well-to-do Reyk-

javikers rise at eight A.M.; breakfast substantially at nine or ten, and sally forth after noon to walk, ride, or call upon friends. The islanders dine at two P.M.; the Danes at four, and sometimes, when parties are given, at five—already an approach to civilised hours. A supper, mostly cold like the breakfast, is taken at eight P.M.; and thus, as in the homely parts of Austria and Italy, the evening visit is impossible. There is no better contrivance for cutting up society.

As on the Continent of Europe, the stranger makes the first call, and of course he begins with the governor. H. E. Hilmar Finsen, despite his Danised name, Finsen for Finnsson, is an Icelander of old and well-known stock, and he worthily keeps up the hospitalities of the late Count Trampe, whom so many English travellers have cause to remember with the liveliest gratitude. The family is a little hurt by the Napoleon book, which gives (p. 160) the genealogy of Vilhjalmr Finsen, in 1857 “magistratus” (mayor) “Reykjavicæ,” through Adam, Noah, Saturn, Jupiter, Priam, and “Odinn, rex Asarum.” The table was sent to the prince as a specimen of an Icelandic tree, and French sense of humour could not let pass the opportunity of taking it *au sérieux* and printing it *in extenso*. After all there is a fine Old World flavour in it: so a Greek eupatrid found in his genealogy, either paternal or maternal, all his country’s gods both of Olympus and of the other place. Governor Finsen’s great-great-grandfather was the celebrated Bishop of Skálholt (1754) and editor of the *Landnámabók*, Finn Jónsson, who loved to latinise himself into Finnus Johannæus; his “*Historia Ecclesiastica Islandiæ*,” though much decried by Catholics, continues to be a standard work. The portrait of this worthy, in ruff and gown, is found everywhere; and the fine oval face, straight features, and serene blue eyes have not left the family.¹ His son Hannes Finsson was the last Bishop of Skálholt, when shortly before 1800, Danes, for motives of economy, fused together the two sees, in the person of Geir Vidalin, first primate of Iceland. About this time the patronymic began to be exchanged for the

¹ Bishop Pétursson has a section (No. 3, p. 448, et seq.), “*De regni Islandiæ Satrapia*,” amongst whom was a Count Ehrenreich C. L. Moltke. Chap. II. (p. 474) treats “*de Finno Johannæo* ;” and Chap. III. (p. 479) “*de Johanne Finnæo*.”

family name ; the son of Bishop Finsson was called Ólafr (Olave) Finsson, and, he being a Danish official, a judge in Jutland who never saw Iceland, Finsson became Finsen.

The present governor's title, Stiftamtmand (Icel. Stiptamtmaðr), has been lately changed to Landshöfðingsi (Danish), a higher grade without extra rank or salary ; and the mayor (Bæarfógeti) has similarly been advanced to Landsskrifari, or official secretary. Hr Finsen is a civilian—admirals and naval officers are no longer the privileged ruling caste, and Iceland has gained by the loss. He speaks French, but prefers Danish ; whilst his very young looking wife, whose six stalwart boys and girls suggest brothers and sisters, knows only her native tongue. We talked of the mysterious volcano in the depths of the Vatnajökull, whose flames were first seen about the end of August 1867 : he advised me strongly to attempt the south-eastern corner of the island viâ Berufjörð ; Professor Gunnlaugsson did the same, and the only dissentient voice was Hr Procurator Jón Guðmundsson. The governor was, I shall show, right.

The second call should be paid to Bishop Pèter Pètursson, who is also agent for the Bible Society.¹ This dignity was most obliging in giving me information, and he presented me with a copy of his work, alluded to in the Introduction. He was then (1841) licentiate of theology, "toparchiæ Snæfjellensis et Hnappadalensis Præpositus" and "Pastor Stadastadensis." I asked him why he did not bring it up to the present day, and he replied, with excellent sense, that to write contemporary annals is a hard task ; and that *De vivis nil nisi bonum*, though a fine Christian precept, is a prescription for composing history of very dubious value.

The approaching departure of "Lø Cher," and the presence of a Danish cruiser, and the mail-steamer, officered by the Royal Navy, caused an unusual outburst of hospitality. The first dinner where I "met the surly Dane," and found him an uncommonly good fellow, was at the house of the good M. Randrúp,

¹ I made the mistake before leaving England of buying the Biblia published in the German character at Copenhagen in 1747, and found the language old-fashioned. The Oxford edition of the Bible Society, which sells for four marks, is certainly an improvement.

Consul de France, a Continental, whose devotion to the interests of his native country has considerably "exercised" the political section of the islandry. I cannot refrain from expressing my gratitude to this gentleman and his family; he was ever ready to assist me and, indeed, all travellers; whilst madame and mademoiselle made visits peculiarly pleasant. A Danish house is always known by pictures and engravings of Copenhagen and other home scenes, in addition to family photos and loyal portraits of King Christian IX. and his queen; of King Frederick VII., who travelled in Iceland and left there the best of names; of the Prince of Wales and the Princess Alexandra, who has warmed every heart; and, perhaps, of the battle of "Schleswig-Holstein meer-umschlungen." One enjoys even the artificial presence of trees, which look like the portentous growths of the Brazil or Central Africa, after the stunted vegetation in and around Reykjavik. The Icelanders sing or are supposed to sing:

" From the midst of Copenhagen's smoke,
We all yearn for home;
Long, dearest, again to behold thee.
The noisy din irks us;
Revelry tempts us in vain;
And the fool grins contemptuously at us
In the streets of Copenhagen."

The Danes slyly remark that a good appointment and the easy temptation of rixdollars greatly modify all this athumia and nostalgia; and there is much truth in what the Napoleon book says, "Chose étonnante! il n'y a pas de patriote islandais, lorsqu'il est de retour dans son pays, ne caresse l'idée de s'en aller vivre dans un pays à végétation sérieuse" (p. 157). In a certain stage of civilisation, there is no place like home; about the end of the last century we find Ireland, that "mild and sedimentary Iceland," styled the "kingdom of the zephyrs," and grandiloquently described as a "country particularly dignified by the magnificent hand of Nature, whose liberality has denied it nothing that is necessary to constitute a great and happy nation." A fallacy lurks in the well-worn quotation:

" So the wild torrent and the whirlwind's roar
But bind him to his native mountains more."

The Switzer readily leaves his *mère patrie*, but ever cherishes the hope of returning, a wealthy man, to lay his bones in the place which gave him birth. The Englishman, whose native mountains are mole-hills and whose wild torrents are mere "cricks," does exactly the same. The Frenchman, also an inhabitant of the plains, tears out his heartstrings whilst bidding adieu to "beautiful France," but when comfortably settled abroad seems to care little for seeing her charms again. Perhaps I should speak in the past tense, for railways and steamers are levelling these differences.

All the guests spoke English and French, and all were very charming. They were curious concerning Bláland, the country of the blacks; and they asked about Dr Livingstone, whose name is known in every farm-house which owns a few books. They inquired if I belonged to the "Jökull Klubb" (Alpine Club): apparently in a mountainous country an Englishman must study mountains not mountaineers. The table is always *à la Russe*; flowers and fruits have been to our "groaning boards" what the cigar and the pipe were to the dessert and "wine;" only those who remember the last generation can appreciate this relief from endless side dishes and the barbarous hospitality which prided itself upon pressing an indigestion upon the *conviva satur*. The flowers are mostly artificial—I wonder why the tender and beautiful island heaths are not more generally used. The salmon from the Laxá and the sea-trout are undeniably better than ours. The venerable custom of drinking healths is still preserved: it descends directly from the "full," or tumbler, quaffed in honour of Odin and Njord, Frey and Braga. Christianity converted these toasts to the Father, the Son (Kristsminni), the Angels, especially Michael, and the Saints; and modern conviviality has devoted them to present and absent friends. The habit is to "cap out" after bowing, and then to tilt the wine-glass slightly toward the compotator, with a second bow. When you help your neighbour from a fresh bottle, you first pour, as in the Brazil, a few drops into your own glass; and at a certain stage of the proceedings you do not administer a bumper. The sole toast was to Justisrað Bojesen, the governor's venerable father-in-law, who was on a visit to the

island. After a dessert of the *studentenfutter*, cold pudding, dates, prunes, and olives, all rise and, whether introduced or not, bow or shake hands, especially with the host and hostess, saying "Velkomme," not "welcome" but "prosit," a hearty old Danish, or rather German, practice, not indigenous to this part of Scandinavia. There is no sitting when the smallcoats leave the table; and probably from the scantiness of accommodation only men dine out.

The next banquet, being at the governor's, was more official, only four black coats appeared, and even the mayor was dressed in uniform, gold-embroidered cuffs and collar of green velvet. Toasts were numerous, beginning with the French and Danish nations, which were duly acknowledged: and the two strangers, a young Englishman and myself, replied in French—not in Latin. After dinner we smoked and drank coffee, whilst the juniors, despising the damp cold, repaired for croquet to the "lawn." At the bishop's there was a strong muster of the clergy from the outstations, in honour of the Rev. Guttormr Vigfusson, who had that day been ordained. Here, and here only, we saw snuff taken at table, and a use of the knife in the matter of peas and gravy, which still lingers amongst the best society in parts of Europe—it would be insidious to specify—but which Beau Brummel and his cloth have completely banished from England. It is only in the "Regimen Mensæ honorabile," that we still read:

"Sal cultello capia-
 } tis."
 Modicum sed crebrò biba- }

The bishop's wife dined with us, and went through the laborious process of dispensing soup and meat to some two dozen guests; there was no room for the two pleasing daughters, nor for the adopted child—certainly the best looking of maidens at Reykjavik. We separated early, and after the Homeric proportions of the banquet a long walk was judged advisable.

The evening's conversation taught me how thin-skinned are Icelanders upon all subjects connected with their country and themselves. I could not but think of a canny people farther south, who hold praise to be an impertinence, whilst dispraise, if

it were not so truly contemptible, would be the one offence never to be condoned. Madame Ida Pfeiffer's angry book was duly sat upon, all declared that she has misconstrued almost everything she observed. The fact is, that the poor authoress, when flitting through the country on her "weird visit," was utterly misunderstood by the people, and showed her resentment by the use of her especial weapon. Even the genial and amiable owner of the yacht "Foam," who, so far from wishing to hurt the feelings of any reader, has passed over in silence many things which ought to have been told, is not forgiven for the Latin speech beginning with "Pergratum est"—"chaff" is unknown in Iceland, and gives terrible offence to this painfully sensitive race. Chambers is a *farceur*; Prince Napoleon is harsh-judged for writing anything that might not please Icelandic readers; Forbes never rounded Snæfell; the late Professor Pajkull is a prejudiced foreigner, whose views about the sheep disease are simply ridiculous; and even Baring-Gould is incorrect in his details. For science, we are referred to Sir George Mackenzie; and for geography, manners, and customs, to Dr Henderson. It is only fair, however, to state that sensible Icelanders, who have lived out of this "living and antiquarian museum, recalling, as far as material and practical progress is concerned, the Europe of a century ago," agree that Henderson praises them beyond all measure, and recommend to all Englishmen Professor Pajkull, as the fairest and the least exaggerated in general statements.

I already felt the growling and the bursting of the storm upon my devoted head. But the traveller who would do his duty to the Public must think as little as possible of blame and praise. The reader, and also the critic, enjoy high spirits, persistent optimism, and especially the "burying of all animosities, and condoning of all offences"—in fact, every tale of travel must be a Chinese picture, all lights and no shades. The end of a journey, like the resignation of a ministry, should cause a general whitewashing. If we tell the truth, we are sure to be assured that our pictures are forbidding or "bilious in tone." My only reply is, that under certain circumstances they can be nothing else, if, indeed, they are to be portraits, and not fancy sketches for a Book of Beauty. I own to feeling a personal grievance against a writer

who spreads before me all the sweets, and who hides under the table all the sour and bitter of his experience.

The next invitation was from Capitaine Alfred Le Timbre, of Saint-Malo, a pleasant, gentlemanly man, who spends his summer in looking forward to September, when the "Cher's" head will turn south. To an Englishman the most companionable of Frenchmen is generally a sailor, and a Breton is all but a compatriot. Capitaine Le Timbre and his consul have no slight task in controlling some 3000 French fishermen, distributed amongst 250 vessels: the foreigners are bound not to land, and, indeed, not to approach the shore within the normal score of miles. This law is much broken; the men are often obliged to be invalided, and are sometimes wrecked with considerable loss of life: the underwriters after August add 1 per cent., and 0.50 per cent. for every subsequent fortnight. I afterwards travelled with nineteen of them on board the "Diana," and found them by no means a "rough lot." The people buy smuggled goods low, and sell provisions uncommonly high, and the results are frequent free fights between the strangers and the islandry. The former complain that they are always wrong in the eye of the law, and that their own authorities are ever the most severe in the matter of fines and imprisonment. As has been said, the Reformation made salt cod more valuable to Catholic lands; still sundry of our fishermen, when they fail at the Færoes, where the fish is better and more easily carried home alive, try Iceland: the Grimsby men are said to be the worst, the Hull men the best. An occasional cruiser is much wanted to keep the ruffians in order: Forbes recommended the measure years before H.M.S. "Valorous," Captain Thrupp, appeared in August 1872. No English man-of-war deigned to grace the millenary festival of 1874—the successful effacement of Great Britain should be a matter of heartfelt congratulation to us; but *gare* the recoil of the spring. The evening was pleasant, as usual on board a ship of war, and the belongings wore a home look, a civilised aspect, which made it more than normally agreeable—I felt again at home. The traveller cannot help remarking one effect of railroads and steamers upon European society: in dress and manners we all seem to be forming one great nation. One of the guests

was a Hr Grímr Thomsen, who is favourably mentioned by Messrs Dasent and Newton: after being employed in sundry consulates, this gentleman of "grim cognomen"¹ has taken a pension, and settled at the old college of Bessastaðr, where he attends to agriculture, and looks after the fishing. From him I heard how far superior to Arab blood are Iceland ponies, and a curious local grievance—it must serve for a better—namely, that strangers come to the island under the impression that they cannot break their necks in it. He first showed me the popular habit of making unpleasant and antipathetic, if not rude, remarks: this mordant tone is still a mania in Iceland; it descends from the days of the defamatory songs, which spared neither gods nor men. And now, having dined out, we will turn elsewhere.

The Klafter (chat) Klubb is an institution even more primitive than that of Madeira, which, greatly to feminine and connubial satisfaction, used to close at six P.M. The many-windowed wooden building in Hafnarstræti is the store kept by Hr Möller, who manages the club, and allows it three small rooms somewhat higher in the ceiling than usual. It opens only on Wednesday evenings, when the principal merchants congregate to drink "toddy." The yearly subscription is \$12; and strangers, after being presented, may visit it three times gratis—unless the usual sharp practice rule otherwise. In such matters there is a conventional honesty; even in London the secretary will sometimes do for the institution what he would not think of doing for himself.

At the first opportunity I called upon M. l'Abbé Baudouin, now the only Catholic missionary in the island, which formerly had two. The road leads past the Hospital, and we can inspect the tarn whose southern bank is the Paseo for "beauty and fashion"—I rarely met any there but English. The little piece of water in former days was covered with wild fowl; now it supports nothing but yellow-green weed, especially when it shrinks in July and August. It drains large peat bogs at the southern or

¹ Grímr and Grímnir are names of Odin, from his travelling in disguise: grímu-maðr is a cowled man, "Mutalassam," or "face-veiled," as the Bedawin say.

inland end, and when swollen it passes to the sea by the foul ditch before mentioned, fit only for stickle-backs. In winter it serves for skating, but it is not always frozen over, another proof of unexpectedly mild climate despite high latitudes. Of course it is very variable under the influence of the volcano and the iceberg: in 1845, the last eruption of Hekla covered the adjacent valleys with abundant vegetation; in 1869 and 1873, the greater part of the island was ice-bound for months.

On the western bank of the tarn are two targets for rifle practice, one at 95, the other at 112 paces. I never saw shooting there; in fact the only soldiering known to Reykjavik is when the Danish "Fylla" disembarks her short, stout, dapper, little crew, averaging twenty-two years of age, for drill under a tall quartermaster. On the other side of the road is the cemetery, guarded by posts and rails; the mortuary chapel, with its dwarf steeple, all wood, and lighter than those of the Sienna country, faces east. Crosses are everywhere, from the deadhouse to the *parva domus*: some of the tombs are not to be despised, and the epitaphs beginning with "Hver Hvflir" (here lies) are not the comedies of our country churchyards. It is a peculiar custom to keep the dead unburied sometimes for three to six weeks; and the measure can hardly be precautionary, as the bodies are screwed down in the coffins, and stored at the solitary cemetery. A resident foreigner lately exposed himself to prosecution because he interred his servant only six days after death.

Turning rightwards we pass a windmill to the south-west of the town. On its eminence the people assembled in May 1860 to see the flames and flashes proceeding from the "aqua-igneous" fissure of Kötlu-gjá, which, distant some eighty miles, shot up, they say, a pillar of smoke, steam, and scorixæ some 24,000 feet high (?). From this point also, we are assured, the gleam of the Vatnajökull volcano could be detected in 1867. The country beyond the mill is a barren stretch of stone, where dodgy plovers lay their eggs, and where swarms of gnats put the promenader to flight. A few steps lead us to the house of M. Baudouin, which is the best in the island; it was built by Bishop Helgi Thordursson, predecessor of the present dignitary, and the use to which it

was converted gave some scandal. The Abbé fenced himself in with a railing and turnstile, levelled the warts, and manured the ground—the shells and the sea-wrack offer excellent compost, but they are never used. This was done seven years ago, yet double crops are still produced: the inordinate price of labour, \$2 a day being the wage of a field hand, prevented further operations. Truly a few Trappist establishments scattered over the island would do an immensity of good.

M. Baudouin then built to the west of his dwelling-place a cross-crowned chapel, and preached to full congregations, who attended regularly—I should mention that he is an excellent Icelandic scholar. This proceeding aroused the wrath of the Reformed. Strange to say, in this section of the nineteenth century, a country which boasts of “liberal institutions” will not permit -version; and, although the Althing has been strongly in favour of extending everywhere freedom of faith, propagandism is allowed only to commercial settlements. The house being out of town, Monsieur l’Abbé was warned that he was not *en règle*: the code of Denmark authorises a “subvention” to those who build places of worship, but “subvention” was altered by Icelandic interpretation to “permission,” and thus the good missionary was assured that he required permission to do what the law permitted—which is absurd. His opponents then tried to revive against him the obsolete tyrannical ordinances of the old Protestant world: he is an outlaw, he may be flogged, and even killed with impunity, whilst harbouring a Papist is punishable by a heavy fine—six ounces of silver doubled every day.

The Abbé wanted nothing better than to be a martyr, but of course he wanted in vain. Laws in Iceland are somewhat flexible things, exceptionally applied at times, and liable to be broken with impunity: so in England “law” contrasts pleasantly with the rigidity of “la loi” of France. In this island, where people cannot afford paupers, families are dispersed even more cruelly than in our inhuman workhouse system, and each member is transferred to his or her *Sýsla* (county): the country, however, can plead necessity for these severe conditions. M. Baudouin chose to lodge and board an unhappy household subject

to forcible separation. Thereupon the mayor imposed upon the paupers a fine, which they refused to pay, and lastly, he ordered their protector to expel them. The Abbé stoutly refused, and asked what would result if the affair came before Chief Justice Thorður Jonassen? The reply was, "It will be as he sees it." Presently, the authorities perhaps remembered that when something of the same kind happened in the north, the case was quashed by the Court of Cassation in Denmark—nothing more was said. As Rome proposes to establish a Vicar Apostolic for Scandinavia,¹ M. Baudouin bides his time. For two years he has been in bad health, and wears a frost-bitten look; he now proposes to sun himself for a time in France, and after his return, to preach in Icelandic when he pleases and where he pleases. The Protestant party boldly hopes never to see him again.

I was pleased to hear from the Abbé a Catholic version of the Reformed movement which followed the proclamation of Christian III. in 1540, and more especially of the murder or just execution of that "illiterate and turbulent prelate" who ended the "dismal ages of papal darkness," Jón Arason (Are's son), whom foreigners call Aræson and Areseni, the last occupant of the northern see, Hólar.² His enemies declare that at eighty he had a concubine; that he unmercifully seized and otherwise persecuted, his opponents; that he never went south without an armed retinue of two hundred bravos; that he refused to go to Copenhagen, and that he was a rebel against the Crown. His friends refute the charges preferred against him; deny the hólmganga or duel which he is fabled to have fought with Bishop Ógmund; assert that the "Historia Ecclesiastica" contains no less than three contradictions, and persistently declare that J. A. was simply a martyr to Catholicism. The Reformers, acting under the Danish Government, were headed by Oddur Gottswálksson and Gizurr Einarson. The former, a son of the Bishop of Hólar,

¹ I see by the papers that Father Stub, the Barnabite, on his return to Berghen in Norway, opened a Catholic church, to the great satisfaction of the people.

² This common name of places in Iceland means Holts, hills; it is the plural of Hóll, but most writers put it in the dative plural, Hólum, as it would stand in composition "í Hólum" at Hólar. Possibly the intention is, despite grammar, to apply Hólum to the bishopric and Hólar to the other sites.

when studying at Wittenberg, had been strongly imbued by Luther and Melancthon with the spirit of the new faith; he afterwards became the first translator of the Bible, and lawyer for the northern division of the island till he was drowned in 1556. The latter was in turn secretary to Ögmund, Catholic Bishop of Skálholt, Lutheran priest, and, finally, first Lutheran bishop of the southern see. They suborned against J. A. one Daði, a peasant of Mýra Sýsla, in the Borgarfjörð; and Judas, as usual, pretending to be his friend, betrayed him to his foes. The house in which he was arrested is still shown a little south of the Kvennabrekka chapel: he was carried to Skálholt, the southern see, already Lutheran, and was incontinently beheaded.

Followed the usual scenes of persecution and destruction: we might be reading a History of England. The Reformers became deformers. Cruel laws were passed against the priests; the churches were plundered of their wealth; the various religious houses,—four monasteries, two priories, and two nunneries,—each of which, after the excellent fashion of El Islam and its mosques, had a school attached, were suppressed, whilst the lands were either sold, vested in the Crown, or made over to Lutheranism. It was a case of “non licet esse vos,” and the proceeding was exactly that of our Act of 1537.

Let me briefly remark that in treating of matters which happened three centuries ago, both Catholic and Protestant writers are too apt to look upon them from the stand-point of the present. Catholics see only the use of their establishments; they will not accept the consequences of defeat, and yet they know that by the rule “Væ victis” they would have dealt, had they been conquerors, the same measure which was dealt to them. Protestants note only the abuses which marked the age; they look upon the old system with a jaundiced eye, and they misrepresent, undoubtedly, often without knowing it, the state of the ancient Church. Thus, we find it chronicled that many of the Icelandic bishops were married, without being told that they might have been married before they were ordained. And if there is anything in the present day which draws English Protestants to Catholicism, it is the fact that honest inquirers find

they have been brought up in gross ignorance, to say nothing more, of the rival creed.

The Abbé Baudouin is strong in the belief that by virtue of the jewel Fair Play he would soon revive Catholicism in one of its old seats. And looking at the lukewarm action of the Lutheran faith, the scanty hold it has upon the affections and the passions of the people, the laical lives of the clergy, the prevalence of the "squarson," and the growth of "free thinking," I cannot but agree with him. Indeed the revival of Catholicism is one of the phenomena of the later nineteenth century, which time only can explain. Is it a steady flame or a fitful flicker preceding the final darkness? Its statistics are wonderful. During the last eighty-five years in the United States, it has risen from 25,000 to 9,600,000, a proportion of 1:4 of the population; whilst *the* faith of the nineteenth century, spiritualism (R. D. Owen), numbers only 7,500,000. In Holland, the very cradle of the Reformation, Catholics and Protestants are now about equal; and, whilst the census of Victoria gives 121 religions to less than three-quarters of a million, Catholicism in England seems bent upon forcing men into the extremes so distasteful to the English mind, upon dividing the country into two great camps, Catholicism and its complement Methodism. In Iceland the result of free propagandism would probably result in making all the people Catholics or Rationalists.

It was generally regretted that Dr Hjaltalín the Archiater, who was preparing for a trip in the "Diana" to Europe, did not take part in the festivities. I need say nothing about the scientific acquirements of this well-informed and most obliging Icelander, whose writings are known throughout Europe. He has travelled extensively in his own country; and I was the greatest loser by his departure, as otherwise he might have led me to the unexplored regions in the south-east. He was especially interested about coal, a subject which seems now to be undergoing revival in the north: a fresh impetus has been given to its exploration in Norway and Sweden: even in the Færoe Islands a Danish company proposes to exploit the beds. An expedition, accompanied by Professor Jonstrup and a Silesian engineer, lately returned to Copenhagen, and revived the views

of Professor Krazenstein, who in 1778 examined the Prötefeldt in the island of Suderoë. The report is that the people have used their coal as fuel for a century; that although not so easily fired as the English, it gives a stronger and more lasting flame, and that it is free from sulphur and other minerals injurious to the fabrication of steel and iron. But, after settling its calorific properties, the grand question is, whether the veins are in the real carboniferous formation, whose beds are thick enough to work profitably. Seams which occur in the nummulite-hippurite Jurassic formation mostly lead to loss, witness those which have been worked near Trieste, on the Adriatic coast, and in parts of the Libanus.

Dr Hjaltalín was sanguine concerning the coal lately found in the regions about Norðrá, a northern affluent of the Western Hvítá River: the exact position is between the little tarns Vikrafell and Herðavatn in Norðrardal. He expects soon to settle a long-disputed question, "Has coal been produced *in situ*?" and the sister formation of the Færoe Islands, where a Danish officer, Captain Dahl, has bought a vein seven feet thick for \$50,000, ought to aid in solving the mystery. It is found associated with the Surtar-brand,¹ a semi-mineralised lignite, common on the western coast of the island. Uno Von Troil tells us that cups and plates which take a fine polish are made of it at Copenhagen: this reminds us of the bitumen "finjans" from the Tomb of Moses, near the Dead Sea.

Uno Von Troil, Sartorius Von Waltershausen, and Professor Silliman maintain this Devil's or black fuel to be a local produce of forests buried by ashes, and ripened by the superincumbent sand and humus. On the other hand, Professor Steenstrúp and M. Gaimard declare this "brown coal" to be flotsam and jetsam from the Gulf of Mexico. Professor Paijkull found in it some thirty kinds of growth: the vine and platanus, the tulip-tree and mahogany, associated with oak, elm, willow, alder, birch, walnut, fir, and other resinous vegetation. These items, if grown *in situ*, as they appear to be, suggest a change of temperature utterly unknown to historic times, and belong-

¹ The name has been discussed in the Introduction (Section VII.).

ing to the flora of the upper Miocene, *e.g.*, Madeira. Halley explained the intense cold of Behring's Straits, by placing the Pole there before the earth's axis had altered its direction. Others have attributed the change to the diminution of ecliptical obliquity, the excentricity of the earth's orbit, the precession of the equinoxes, and the revolution of the apsides. Similarly the Markgraf F. Marenzi (*Fragmente über Geologie*) cuts the Gordian knot, by supposing an altered obliquity of the ecliptic, which may have acted, he says, in past ages even as the present ever-increasing excentricity of the orbit will in some 210,000 years produce another Glacial Period, and render Northern Europe uninhabitable. On the other hand, he remarks that however torrid may have been the hyperborean climates, they must ever have lacked the fructifying insects, peculiar to temperate, sub-equatorial, and equatorial zones. Judging from Miocene Greenland, the reverse would appear to be fact.

It is impossible to stay a week in Reykjavik without finding out that the world is split into two divisions, strongly marked as were our Whig and Tory of the last generation. The Danes are in the minority: they represent the utilitarian, the cosmopolitan, and, perhaps, the metropolitan side of politics; and they complain that whatever the mother country does for her distant dependency, the latter is ever clamorous for more. The majority is the Icelandic party, for whose political aspirations I can find no better name than "Home Rulers,"—warning readers, however, that the comparison must not be strained and identified with that of Ireland. The main difference of the movement, as far as I can see, appears simply this. Iceland is actually 1600 miles distant from Denmark, as far as London from Jamaica, and practically, when the post goes only seven times a year, as far as Australia from England. Again, the proportions of Iceland to Denmark (1,800,000) are 1 : 35, and the population is 1 : 25·70. England certainly would not refuse Home Rule to the Irish if they lived in New Zealand and numbered about 750,000. No wonder then that Iceland objects to be treated like a "Crown colony of a rather severe type."

The islanders show a growing dissatisfaction with the Danish Government, which they declare to be, though mild, meddling

and unintelligent—in fact, perpetuating the petty, “nagging,” and annoying policy which lost the duchies. They might respect whilst they hated a strong despotism; but perpetual interference they despise as well as hate. They are urgent as Mr Butt, for leave to stand on their own legs, to manage their own affairs; the Danes have tried, they say, for centuries to govern them, and progress could hardly be less were they left to themselves. The worst that could happen to them would be to starve, in which case they would deserve their fate, and could blame none but themselves. They complain, and I think with justice, that individually the Dane is not sympathetic to them; whilst Icelanders learn Danish, which, however, they pronounce with their own accent, Danes disdain their language and will not even attend their church. Residents of twenty years declare that they never read the theogenic, cosmogenic, and mythic Eddas,¹ because they are literally “grandams’ tales;” whilst the Sagas or Sayings, moral and dogmatic, epic and historical, are a tissue of inventions, monotonous, moreover, sanguinary, immoral, and barbarous. The actual leader of the opposition, or Home Rule party, is Hr Jón Sigurðsson (nat. 1811), now in Denmark, a far-famed Norsk scholar, and an *employé* of the Danish Government. “White John,” as the popular nickname is, shows his clean shaven face everywhere, photographed for the patriot party. He owns advanced opinions, but he rests within constitutional limits; his followers, of course, go further afield, and not a few of them may be called republican. He has the honour to appear in the Millenary lithograph with the following notice: “President of the Althing, President of the Icelandic Literary Society, President of the Icelandic Thjóðvinafélag; has distinguished himself as an uninterested and faithful champion of the national and political rights of the Icelanders; besides he has made himself conspicuous as a thorough scholar in the history and legislation of Iceland.”

There is also a small and unimportant Norwegian faction which seems bent upon drawing the islanders to itself, chiefly, it appears

¹ Moðir is mother; Ammá (evidently a Sanskrit form), grandmother; and Edda is Proavia, or great-grandmother. Of course the derivation is disputed.



ULTIMA THULE;

OR,

A SUMMER IN ICELAND.

CHAPTER VI.

THE PRESS—VISIT TO THE LATIN SCHOOL—LIBRARIES AND COLLECTIONS—GUNNLAUGSSON'S MAP—NOTE (NATURAL HISTORY AND ANTHROPOLOGY).

THE first newspaper printed in Iceland began in 1775: in the catalogue of writers prefixed to the work of Uno Von Troil, it is called the *Isländische Zeitung*. This *Islendingur*, not long defunct, gained considerable reputation; the back numbers are to be found at the College Library. At present the island publishes three periodicals, of which two are printed at the capital. The first, which appears regularly twice a month, is called the *Thjóðólfr*,¹ an old Icelandic Christian name; and in 1872 numbered its twenty-fourth year. The sheets vary from one to two, according to the amount of news; the columns are double, the page is about 10 inches by 8½; the subscribers' list shows some 1100, and the yearly subscription is \$1, 2m. Osk. The editor, Hr Procurator Jón Guðmundsson, a barrister, conducts it worthily, and with great intelligence; he is outspoken, but not factiously so. The *Tíminn* (Times) appears once a month; its politics are of the "Hlut-lausr," lot-less, or neutral tint, which would have caused it to be ostracised at Athens; and there is some mystery

¹ From *Thjóð*, old High Germ. *Diot*, a people, a nation; often found in composition, as *Thjóð-fundr* = constituent assembly, *Thjóð-rekr* = Germ. *Diet-rich*, and *Thjóð-marr* = Germ. *Dit-mar* (Cleasby).

about the editor, who is usually supposed to be Hr Páll Eyúlfsson, silversmith and cicerone. The third is the *Norðanfari* (Northern Traveller) of Akureyri,¹ the chief commercial station in the north. It usually comes out some twenty-six times a year in the full size of four pages, and at intervals with reduced proportions: matter is fearfully scarce during the four winter months, when there are no mails, and local subjects must be at a premium. As regards the sparring of rival journalists, it is, to quote Arlequin's saying, "tout comme chez nous."

The history of printing-presses in Iceland has been copiously treated. They were first established at the two bishoprics of Skálholt and Hólar; privileges were then granted to Leirá, Viðey,² and Hrappsey; and now there are two, in Reykjavik and Akureyri. The office at the capital is in High Street, where three men work the two presses and four cases: the folding machine has yet to be introduced.

The Icelandic Literary Society (Hið Íslenska Bókmentafélag) still survives: after passing through the usual phases, it is now loyal and respectable. Concerning the first, or Societas Invisibilis (Hið ósynilega Félag), established in 1760, ample information will be found in Bishop Pétursson's "Hist. Eccles. Isl." (pp. 339-342). The second (Hið Íslenska lærdomslista félag), dating from 1779, is treated of in Mackenzie (chap. vii.): it admitted corresponding and honorary members. The third (Hið konunglega Íslenska lærdomslista félag) in 1787 became a Royal Society: it is interesting because it first treats of the sulphur mines and trade of Iceland in the reign of Frederick II. (1336-59); and the presiding genius was the celebrated Jón Eiríksson. This worthy, whilst under the influence of melancholia, committed suicide, a proceeding as rare amongst men of

¹ Akureyri had another paper, the *Gángerli*, which ceased publication in 1872. It contained some valuable articles, especially one headed "What am I to pay to the Thing?" and the answer was apparently not easy, as it occupied seven issues, beginning with February 7, 1871.

² It was here in Henderson's time, and it was disliked because charged with "a tendency to introduce the illumination of the German school." At present, besides the presses of Reykjavik and Akureyri, there is a third at the Elliðavatn, one hour's ride from the capital. It belongs to a certain Hr Benedikt, ex-assessor of the High Court of Justice, who was removed for the best of reasons. He has no licence to print.

distinction in the post-Christian as it was common during the pagan times of Iceland. I inquired in vain about the savant's bust, which was broken on the voyage to this island; my informants had only a hazy idea that the head had been returned to Copenhagen. A medallion of the great Scandinavian literato, now in the hands of Hr Sigurður Guðmundsson, shows him in profile, with protruding chin and brow, a nose worthy of Fielding, a long-tailed wig with *ailes de pigeon*, and a frilled shirt.

The fourth Royal Society of General Instruction in Iceland (Hið Konunglega íslenska Landsuppræðingar Fèlag) was established by Magnús Stephensen. The fifth, Vísinda og Upplýsingar-Stiftan (Institute for Knowledge and Instruction), was conducted by Björn Gottskálkson, when the press was removed from Hrapsey to Leirágarðar. The sixth, which actually exists (Hið íslenska Bókmenta Fèlag), was founded by the celebrated Professor Rask in 1816, on March 30, which is kept as its birthday. The bye-laws were printed in Icelandic and Danish at Copenhagen in 1818: the Skýrslur, or annual report, first appeared in 1825.

The object of the Society is to publish and circulate, at the cheapest price, useful, standard, and also original books, together with newspapers and periodicals. Such literature is still a prime want in the country, and an enterprising publisher like Mr N. Trübner might do a "good stroke of business." The two branches, Danish and Icelandic, choose their own executive every year, and keep separate accounts, which are blended in the general annual statement: the latter is published by Hr Bianco Luno of Copenhagen, in French and English, as well as in Scandinavian. The books are also printed at the metropolis, and sent out to the island. The *magnum opus* is the annual review, historical report, and magazine of general literature, classically called Skirnir, the Narrator, or Eddaic messenger of Freyr.

The Society numbers some 720 Fèlagar (members), besides a few corresponding and honorary, French and English, German and "American." The subscription is \$3 per annum. The Icelandic branch meets, besides extraordinary occasions, twice a year, in March and July; the latter is the Synod time, corresponding with our May meetings; and the venue is at the Priests'

Seminary for want of other room. The first president was Hr Ární Helgason; Bishop Pétursson has held it for twenty years, and it is actually tenanted by Hr Jón Thorkelsson, head-master of the Latin School. The rector, Hr Jens Sigurðsson, is the treasurer; Hr Páll Melsteð is secretary; and Hr Hálldór Guðmundson acts librarian.

Formerly there was a high school at each bishopric, and a prime grievance of the island is that the two having been reduced to one, the northern and eastern provinces are put to un-called for expense and inconvenience. Children learn the "four R's" at home from their parents: hence the unalphabetic are rare, and some priests even refuse to marry them. At the capital both sexes may attend a preparatory school in Harbour Street (Hafnarstræti), till the age of confirmation, or fourteen. The cost is small, \$8 per annum, but all the pupils, even those who come from afar, must live in the town. Besides the elements of knowledge, they learn history and geography, Danish and Icelandic, but neither French and English. Music is little cultivated, the piano is not unknown, but the singing is chiefly confined to hymns, and of these few are original. Dancing and gymnastics are equally neglected.

I visited the Supreme Court, a low building in the row north of the Landfógeti or treasurer's office, under charge of the stiff old usher. The left room is for the town councils; the right for the administration of justice, as shown by the oval table, by four chairs within, and by two small tables and bench without the cross-rail. It would be hard to swing a cat, with anything like safety to the animal, inside this temple of Themis, and its mean proportions gave me satisfaction. The next move was to the Latin School, which has now taken the place of the Schola Bessastadensis. The highly uninteresting building, already collapsing in its twenty-ninth year, is approached by a bridge spanning the foul drain, and is fronted by a sloping, grassy lawn kept in decent order. The civil hall-porter acts cicerone. Turning to the left of the hall, where a big clock stands, we find the younger classes preparing for examination, a professor walking about to prevent "cribbing:" this is the written portion; the *vivá voce* process will be conducted in the front hall of the

first floor, where the Althing meets. It is a fair-sized room, with the royal portrait at the bottom opposite the entrance, fronted by a long desk of green cloth: the rest of the furniture consists of benches covered with green baize. The governor sits on the proper right of royalty, and the president of the Diet on the left. The last session (1871) was described to me as somewhat stormy, and the nays (neis) far outnumbered the yeas: the latter (já), when reiterated in excitement and pronounced *yáú*, sound somewhat comically, a manner of bark, yow, yow, yow.

There are two dormitories in which the little beds stand side by side. Everything is of the humblest description; even the ceiling of the professors' sitting-room wants repair. A change to the capital has somewhat modified the excessive uncleanness which foreign visitors remarked at Bessastaðir, but there is still much to be desired.

In the Introduction I have given the details of the High School. The programme leaves little to be desired, but sensible Icelanders agree with strangers that the education is sterile and not "serious," in the French sense of the word invented about 1830. The pupils learn a smattering of many things, but nothing thoroughly. This is doubtless the result of a social condition in which only superficial knowledge is at a premium: the same may be remarked in the United States and in the Brazil, compared, for instance, with Oxford and Coimbra, where students find specialties necessary.¹ The consequences of studying Icelandic and Danish, Latin and Greek, English, French, and German, are that very little can be learned. At the beginning of the century every priest could converse in Latin—I have now met many who cannot speak a word of it, and I have not met one who spoke it even tolerably. The useful cosmopolitan dialect has been exchanged for "modern languages:" similarly the Magyar now cultivates his own dialect, and has

¹ And even England lacks the foundations which encourage specialties in Germany. What we want is a number of students who are able to devote their time to pursuits never likely to pay in a publishing sense. Some day, perhaps, one of those philanthropists who give half-a-million sterling to an hospital or to a church, will provide the necessary accommodation in the "Temple of Science"—£15,000 per annum, divided into incomes ranging from £200 to £300, would supply a great desideratum.

abandoned the Latin which, to him almost a mother-tongue, kept Hungary in contact with the culture of the West.

The pupils are hard workers and have excellent memories; they must chiefly, however, depend upon books, and the result is that whilst many of them collect a fair stock of phrases, and pronounce them remarkably well, they can hardly understand a word of the reply. Another and a severer charge is brought against the establishment. The dissipations of Reykjavik appear very mild to a dweller in European cities, but they are, comparatively speaking, considerable. Youngsters between the ages of fourteen and twenty-three easily learn to become boon companions, and to lay the foundation of habits which affect their after-lives. The professorial *Hetæra* being unknown, the students are apt to make any connections which present themselves, and intrigues with the "ancilla" sometimes end in marriage perforce. Thus the country clergyman or the franklin begins life burdened with a helpmate utterly unmeet for him; who neglects his house and children, who thinks of nothing but dress and "pleasuring," and who leads him rapidly on the road to ruin, in a country where all domestic comfort and worldly prosperity depend upon the "gudewife." Hence the old system of schools at Skálholt and Hólar, and even at Bessastaðir, is greatly preferred, and, perhaps, even now the seminary might with profit be removed to Thingvellir. Here it has been proposed to lay out a model farm, where the alumni could add agriculture to their pastoral acquirements.

About the age of twenty-three the *Skóla-piltar*, or pupils, become "students," that is to say, B.A.'s. In order to enter the learned professions, especially the law, they matriculate at the University of Copenhagen, where they are housed and receive annual stipendiums of £15 to £20. They distinguish themselves by thrift and caniness, emulation, energy, and abundant application, when the place agrees with them. But often they suffer from the insidious attacks of a climate which even Englishmen would call rigorous; the comparative mildness acts upon them as tropical heat upon us, and in not a few cases they die of pulmonary disease.

Medicine may be studied at Reykjavik. The school is simply

a room in the Hospital, and subjects for dissection cannot be had without a permission, which is generally refused. On the other hand, students have the benefit of lectures from thoroughly able men, Drs Hjaltalín and Jonassen. The course lasts from three to five years, and after an examination the Læknir (M.D.) may either practise in private, or aspire to become "physicus," at some out-station.

Theological students attend the Priests' Seminary at Reykjavik. It consists of two lecture rooms, fronting the sea, in Hafnarstræti, and furnished with chairs and black desks, a stove, and a list of lectures. The candidates who reside in the town are taught by the Lector Sigurðr Melsted and two "Docents," Hannes Árnason and Helgi Hálfðanarson. The examinations take place in June and August; the former tests their progress in logic and psychology, the latter in theology, ecclesiastical history, exegesis, and canon law. The course lasts at least two years, and at the age of twenty-five, after the final examination, students obtain the degree of "candidat." Some do not choose to be at once ordained, reserving the final step for later in life, but the material advantages of the profession in Iceland never allow it to lack recruits. The result of such a course is to saturate the mind with the Bible, learnt from translations and explained by the individual opinions of swarming commentators. It makes men "fall down and worship" (as the great Spinoza has it) "an idol composed of ink and paper, instead of the true word of God." And when the superficial and ill-taught "divine" has to do battle with a polemical Catholic or a pugnacious Rationalist, the action generally ends in a ludicrous defeat. I especially allude to the late controversies with M. Baudouin, and the disputes with "Free-thinkers," recorded by Professor Paijkull: the Great Book, or Commentary on St John, written by Candidat (Theologiæ) Magnús Eiríksson, is attacked by an "Old Pastor," with an obsolete virulence worthy of the Inquisition.

I was introduced to Professor Hannes Árnason, the geologist of the Government College, who kindly showed me the collections of natural history. Of botany there is none, the hortus siccus seems to be generally neglected in the smaller museums of the world: the student must content himself with Dr Hjalta-

lín's work, and the "Flora Danica," of which a good, but untinted, copy is found in the College Library. Zoology is confined to a few stuffed birds.¹ The mineralogical collection is richer; mostly, however, it is a *rudis indigestaque moles*; the upper part of a chest will be labelled, and the lower drawers in most unadmirable disorder. Moreover, where the traveller wants only local specimens, they are mostly general; for instance, a small cabinet of fourteen drawers contains Germany.²

We then proceeded to the College Library, a detached building of solid construction, but suffering sadly from damp accumulating in the porous stone. In the big bluewashed room fires are neglected, consequently the books are damp and mildewed.³ At the bottom,

¹ The principal are the red-breasted merganser (*Mergus merganser*); the rare lapwing (*Vanellus cristatus*); the water-rail (*Rallus aquaticus*), also uncommon; the thrush (*Turdus eleacus*); the willow wren (*Motacilla trochilus*); and the little regulus with big feet and bill (*Troglodytes borealis*), the Pjetur Nonsmad, or Peter Dinner of Norway, because he is not seen after noon, and the Fugle Kongr, because he rides the eagle. Curious stories are also told about the wren at Trieste; he appears and disappears with the thrushes, avoiding the heats of summer: the same is said about the Abú Hin (the father of Henna) at Damascus. The black-bird (*Turdus merula*) is sometimes driven to Iceland by southern gales.

² Of local specimens we were shown varieties of the Mó-berg (Palagonite tuff), especially from the Seljadalur, which feels soft, between chalk and steatite, some white or dull yellow, acted upon by acids; others brown and black. Palagonite conglomerate with large pieces of felspar. Blue compact basalt from Kjallarnes, with and without drusic cavities; hexagonal basalt; reniform pebbles of the same material. Jaspers, red, yellow, and green, from the north, the latter containing copper. Dolerite or greenstone. A collection of Hekla lavas, passing from the porous to the highly compact. Micaceous "glimmer schiefer" studded with garnets. Zeolite and Iceland spar; silicates of lime. Quartz needles from the Geysir, and other quartzes, uncrystallised and crystallised into fine hexagons, large and small, often contained in holidés. Aluminous clays and oxide of iron, some with regular angles and metallic revetments. Concretions from Laugarnes and the Geysir, the stalks of plants resembling petrified bones. The *Cyprina Gaimardi* and *Byssomea arctica* from the north. Other shells: *Balanus*, *Mya truncata*, *Venus Islandica*, *Lepas*, *Bulla*, and *Turbinus*. True cannel coal from Suderoe, to the west; lignites, old and new; pieces of Surtar-brand, flat, and showing impressions of leaves; large fragments of true pitch-stone resembling, and others in transition to, obsidian. Hrafninn (Raven-flint, *Gagates Islandicus*), obsidian or Iceland agate, black and liver-brown, like Jews' pitch or asphalt, from Mývatn and the Hrafnatinnuhraun of Hekla. Henderson (i. 178) mistranslates Hrafninn, "*Piedra de Galinazzo*, or raven-stone" (for buzzard-stone). Agates, chalcédonies, and transitional opals, from Múla Sýsla, Tindastoll, and Heimaklettur, in the Vestmannaeyjar: according to Professor Abel, the south-eastern coast affords the noble stone, and the islanders believe that about 1821 a Mr Methley (?) carried home a valuable collection. Professor Arnason kindly gave me a little box of chalcédonies which looked like onyxes.

³ The Skýrsla (Report) of the Library gives a total of 387 works, distributed amongst eight stands of sixteen shelves—they are by no means well filled. Classical authors occupy two cases on the left of the entrance; on the right are translations of the Testament, and some elementary works in Arabic and Armenian, Hindostani,

above a broken globe, is a votive tablet erected to an English benefactor, Charles Kellsall of London, who supplied funds for the building, and who left it a library, which, they say, has not yet begun its journey Icelandwards: there is none to Mr John Heath, who printed the Rev. Jón Thorlaksson's well-known Eddaic paraphrase of "Paradise Lost," and to whom the Icelandic Literary Society owes a heavy debt of gratitude.

The principal library is in the Dómkirkja, under the charge of Hr Jón Árnason, inspector of the Latin School—in Iceland, as amongst Moslems, the church is considered the natural place for the library. You open the Lich-gate, ascend the right-hand staircase, and a second dwarf flight leads to the greniers under the roof. When the sun shines, the slates are too hot for the hand: this keeps the collection dry; and the reader is disposed to enjoy it.

The library opens on Wednesdays and Saturdays between twelve and one P.M., when you are allowed freely to borrow after signing your name. The interior is not prepossessing. The total of the volumes may be 14,000; but the catalogue is still to be made. Printed papers lie about in extreme confusion, and "vieux bouquins" are so strewn and piled that you can hardly find what you want. Many of the sets also are imperfect, having been lost or stolen. The three large deal stands, and the shelves ranged against the higher wall, do not supply accommodation enough, and the single writing-table is always desert. The curiously-carved black press from the west, and the pulpit with the four evangelists rudely cut upon it, are interesting, but should be transferred to the Antiquarian Museum.¹


Maharati, and Bengali, all "dead letters" here. At the further end are modern books printed in Reykjavik. The small collection of Icelandic manuscripts is all on paper, the more valuable vellum has left the island for "foreign parts." There are bundles of ecclesiastical archives, tattered and unbound copies of the defunct "Íslendingur," which is more quoted in England than in Iceland; and finally, there is a small set of novelists, Walter Scott (in German), Dickens, and Bulwer, lent to the reading public.

¹ The only remarkable things are the Bibles and the manuscripts. Among the first we find the large folio Biblia of 1584—the first entire work—translated from the German version of Martin Luther by Guðbrand Thorlaksson, Bishop of Hólar, and there printed. This admirable work, which rivals our "established version," is not divided into verses, and is chiefly curious because the mechanical dignitary, who in 1574 imported new types, made his own capitals, plates, and woodcuts. He was assisted by the Icelander Jón Jónsson, and preceded by John Mathieson, a Swede, who brought the first printing press about 1520, and who published the

The manuscripts are a private collection belonging to the librarian, Hr Jón Árnason. They number 226, but not a few of them are copied from Sagas, and other works already printed; this is often done in Iceland, where time is cheap and books are dear. A comparison of the state of Icelandic with that of Persian literature would bring out a curious similarity, resulting from similar conditions, mental as well as physical; and it is the more interesting when we consider the intimate blood connection of the two families. Hr Jón Árnason wanted £200 for his neatly bound collection, and it has, I believe, been sold in London.¹

The Antiquarian Museum, two rooms fronting north, is upon the same floor as the Library, under the charge of Hr Sigurðr

"Breviarium Nidarosiense" in 1521; an ecclesiastical handbook, Luther's Catechism, and others of the same kind. These works, especially the Breviarium, are so rare as to be practically unprocurable. According to my informants, no "Elucidarius" has ever been published in Iceland. The Rev. Thorwaldr Bjarnason assured me that the oldest Icelandic manuscript is one of these catechisms, translated, as they all were, from Latin, and dating from the thirteenth century. The second Biblia (1644), after the Danish version of Bishop Resinius, is the work of Bishop Thorlak Skurlason of Hólar, who divided it into verses. The type is black letter, ultra-Gothic Gothic, and the two folios are in the best condition. There is a copy of the New Testament (1540, Henderson, ii. 265) translated by Oddr

Gottskálksson, with the distinguishing mark  (G. T. and cross), a large and thick duodecimo, with the beginning and the end restored by manuscript—Icelanders, as a rule, are very skilful in supplying lost pages. Of this book only three copies are known, the two others are at the deanery of Hruni and in Glasgow. Another New Testament (1609), reprinted at Hólar by Bishop Guðbrand, whose high-nosed and fork-bearded face remind us of his kinsman Rustam in far Iran, is a small stout octavo, with an old binding and metal clasps.

¹ The valuable printed books are the fourth volume of Finn Jónsson's "Historia Monastica," of which only three copies exist in the island; the "Scriptores Rerum Danicarum" (Jacobus Longebek, 8 vols. folio, Hafniæ, 1772); and the "Crymogea" of Arngrimr Jónsson, 4 vols. octavo: the latter is so unhappily divided that it is most difficult to find a passage required. Some of the shelves are filled with presents made by patriotic Icelanders and liberal publishers, such as *The Gentleman's Magazine* till 1771; a few Smithsonian and Patent Office Reports; "Le Plutarch Français;" "Conversations Lexicons;" the "Allgemeine Deutsch Bibliothek;" the "Bibliothèque des Romains;" "Chambers's Information for the People;" "Dictionnaire de Bayle," and the "Chronique des Religieux de Saint Denis," by L. Bellaguet—a curious mixture by the side of Thackeray, Dickens, and Marryat. The list of local works, so much wanted by travellers and so rarely found, is eminently defective. Neither the first nor the second volume of Cleasby was among the number, and although the Latin translation of the Njåla exists, Mr Dasent's "Burnt Njål" did not appear. Of Englishmen in Iceland, I found Hooker and Mackenzie, Lord Dufferin, and Symington. Gaimard's sumptuous and expensive work, including the folio illustrations, is there: its fate has been general abuse and unlimited "cribbing." I was shown in London some photographs of exploration in the Vatnajökull, which were mere reproductions of the "Sommet du Snæfells Jökull;" and many a book of travels has similarly enriched itself.

Guðmundsson, who, like Hr Jón Árnason, is unsalaried. The former, smitten in youth by love of art, has given his life to painting, and to the study of Icelandic antiquities. The sketch and plans of the "Skáli," or ancient hall, and the plan of Thingvöllur in "Burnt Njál," are productions of which he need not be ashamed. He usually makes the Hospital his studio; and he showed me some portraits which have the rare merit of representing the person, and not another person. Unhappily, it was his fate to lack the patron; a few years of youth spent like Thorwaldsen at Rome, where models are found, and where Nature inspires the brain, would have given warmth and life to a fancy frozen by the unartistic atmosphere of the far north.

The Collection, open at the same time as the Library, is in "apple-pie order," and, though young and small, it promises a goodly growth. There is a catalogue (Skýrsla um forngripasafn Íslands í Reykjavík, i. 1863-1866, published by the Icelandic Literary Society, and printed at Copenhagen, 157 pages, octavo), to which addenda should be appended; the specimens, as well as the cases, also require numbering, for easier reference. It is to be hoped that my excellent correspondents, the late Dr Cowie and Mr Petrie, have so arranged the collections at Lerwick and Kirkwall that the Shetlands and Orkneys may not blush in the presence of Iceland. I shall describe this museum at some length in a note at the end of this chapter: here we are amongst the past centuries, and older life in Iceland is prominently brought before our modern eyes.

Through the kindness of Hr Jón Árnason, I managed to "interview" the venerable Professor Björn Gunnlaugsson, who, being now eighty-four years old (born 1788), partly blind, and very deaf—his wife also an invalid—rarely opens to strangers. He is a fine old man, with large prominent features, shaven face, long hair, with small hands, here very unusual, and thin knees, rarer still. His portrait, taken in middle age, with two well-earned decorations upon the black dress-coat, shows an unusually sympathetic figure.

Welcoming us kindly, the Professor sat in his stuffed chair before a little table, and I noticed that he swayed his body to and fro like a Moslem boy reading the Koran. We talked of

his past life: he had forgotten the details, but he remembered the main points. After spending his youth in teaching mathematics and natural philosophy at the College, he resolved to map out his native island with theodolite, compass, and reflecting circle, and to this labour of love he conscientiously devoted twenty years, not twelve nor eighteen, as has been generally said. He was not very sure about his proceedings upon the Vatnajökullsvegr, the path north of the great south-eastern glacier, before his time considered utterly impracticable; and my curiosity was chiefly for this point. He mentioned his fellow-traveller, Síra Sigurðr Gunnarson, then a young man, who had just taken his degree. He believed that the march took place in July or August, but not after. Of the eight ponies, two were laden with hay, and they found grass at Tómasarhagi, north-west of the Vatnajökull. During his march, no volcano was observed, either in the glacier or to the north of it; and he seemed to have neglected tracing out the sulphur diggings.

When consulted about the Vatnajökullsvegr, Professor Gunnlaugsson strongly advised me to avoid it, as the animals would be exhausted before the real work of exploration began. The easiest attack upon the great glacier, he said, was from the north, especially when the polar winds were blowing, and thus travellers might penetrate to the centre without encountering the difficulties of the Klofajökull to the south. Altogether he was in favour of Berufjörð, the starting point. As the Danish steamer is bound, weather permitting, to touch at that port, I had thought when in England of making it my base; unhappily, the line was represented as too rugged for transit, in fact, impassable, whereas it is distinctly the reverse.

The Napoleon Book (p. 94) declares that Professor Gunnlaugsson began the wrong way by details instead of by an *ensemble* or general plan—a primitive style which would leave much of perfect topography to be desired. It forgets the preliminary trigonometrical labours of the Danish officers, detailed in the Introduction to these pages, and which left to Professor Gunnlaugsson only the task of filling in the already measured triangles. These meritorious men, as often happens, did the best part of the work, yet their names have well nigh sunk into

oblivion. But what can we expect when politics and party-spirit enter into science?

NOTE ON ANTIQUARIAN MUSEUM.

The room first entered is divided into two by a glass case, containing the toilette of the past century, when dress, worth some \$300, was an heir-loom, and when costume was purely insular; not as now, a mixture of Icelandic, Danish, and cosmopolitan. The Museum of Science and Art at Edinburgh contains some articles presented by the gentleman to whom these pages are inscribed; and M. de Kerguelen (1772) sketches a "lady of Iceland" intelligible only when the several items are seen. The case is surmounted by a rude portrait, with Latin verses, in honour of a certain Frú' Hólmfríðr: her hair is concealed by a white koffur or fillet wrapper, somewhat like that worn by the married German Jewess at the four holy cities of Palestine, and this is surmounted by the Hæltve, or travelling hat. The steeple-crowned broad-flapped felt is precisely the Pétasus of the old Greeks, and probably came to Iceland with the pilgrims of the Middle Ages. For the house there are skull caps in plenty, mostly black-velvet and gold embroidered; some of them have flaps like the "Kan-top" of Hindostan, others show the rudi-

¹ The oldest form is Frauva, and the later Frú is probably a contracted form of Fruvu, or of Freyja (Venus), according to the Prose Edda (c. 24), but in the glossary to the Poetical Edda, it is from Friðr, handsome, whence Friðla, a concubine, corresponding with the German Frau, but put after as well as before the name. It was little used before the thirteenth century, and in the fourteenth it was applied to abbesses and the wives of knights, not of priests. At present, it is given without distinction. Húsfreyja is = Germ. Hausfrau = Eng. Housewife, always a married woman. Junfrú is = Germ. Jungfrau, a princess in the thirteenth century, now simply Mademoiselle. Víf (Weib, a wife) is purely poetical in Icel.: it is supposed to be originally a weaver (Vefa, vífiðr). Hence the Anglo-Saxon Wifmann = woman, not womb- (Icel. Vömb) man. Herra (= Germ. Herr) was a title given in A. D. 1277 to the new Norwegian creation of barons (Hersar) and knights: bishops and abbots were also so styled. After the Reformation it became an integral part of the address of bishops, as Síra of priests, but only applied like the Latin Don (dominus) to Christian names. Now it is our Mister or Esquire in writing: in conversation Icelanders have no equivalent for these words; the person, if not a clerk, is simply addressed by his Christian name. The old scale of precedence was Konungr, Jarl, Hersir (the baron of Normandy and Norman England), Hóldr (yeoman), and Búandi or Bóndi, = Germ. Bauer, a tiller of the ground (Cleasby).

mental crest which culminated in the Skaut-faldr.¹ This fools-cap, built with a card-board frame, is then covered with linen; a thin plate of metal forms the crest shape, and the white material is stuffed with cotton, like the Húfa (pronounced *Húá*, = our hood). It is fastened to the hair by pins; and an outer band, spangled with a dozen silver-gilt stars, secures it round the brow, ending behind in a cravat bow and two ribbons, which hide the fastening. Finally, a deep fall or lace veil is turned back, passed over it, and thrown upon the shoulders, reaching almost to the waist. This Skaut-faldr is an excrescence, which deserves to be compared with the Tantúr, or silver horn of the Libanus, which was and is generally confined to married, though sometimes worn by marriageable women.

The other articles of dress are the Skirta (shift) of woollen stuff, worn next to the body: according to some authorities, the health of the people has been improved by cotton, which others deny. The Upphlutur is the long-sleeved bodice, or waist piece, with gold embroidered cuffs, and velvet stripes covering the seams. In modern days it is of velvet, brought from Europe. The Fat is a Wadmál petticoat, extending to the ankles, and of these articles sometimes two or three were worn for warmth. The outer one is copiously worked, and is faced by the coloured Svinta (apron). The Treja is a tight-fitting jacket, with chased buttons: the Hempa, a short outer coat, worn by men and women, buttoned over the chest, is wide at the bottom, about a hand's breadth shorter than the skirt, and open at the flaps to show the embroidered petticoat. The Uppslög or cuffs are slashed; round the neck is a Hálsklútr (white cravat), a Háls-sikener, or cravat of purple silk; and for full dress Strútr, little black collars on the jacket neck, and Kragar, stiff hoops or ruffs of black embroidered stuff, which make the head look as if it were dished up. The terminations are Sokkar, coarse woollen stockings, and Skór, the Iceland papushes: finally,

¹ From Falda, to fold, hence the Ital. Falda and Faldetta, head-dress. As women vied in the size of this "stately national head-gear," it obtained the sarcastic name Stiku-faldr, "yard-long fald." In modern poetry, Iceland, with her glaciers, is represented as a woman with her fald on. Skaut is the "sheet" or veil, which hung down behind (Cleasby).

Kvenn vetlingar, rough gloves, protected the hands. The trimmings of the gowns, skirts, and petticoats are very handsome; nothing of the kind can be found in the present day; and the people have the lost art of cutting wool so as to resemble velvet-pile. The black dye is admirable; it is a fast colour, and lasts exceptionally long. According to the Custodian, it was made by steeping the cloth in dark mud, and then treating it with the juice of the arbutus (*Uva ursi*, Surtarlýng), our bear-berry and the cane-apple of Ireland. The modern toilette has been greatly simplified to the Skaut-faldr and bodice, the skirt of black broadcloth and velvet, embroidered with green silk, and the waist-belt, a poor filigree copy of old work. It costs £17 to £18, and might answer for a civilised fancy ball: the general aspect is that of a Circassian woman's dress—in Circassia.

The ornaments, belts, buttons, bodices, chains, and rings, mostly heir-looms, are as numerous as the articles of dress: they are survivals of the time when people wore all their wealth. Some of the Hnappar (buttons), round and of worked surface, have one or more figures of the Crucifixion hanging to them. These are no longer made. There are Ermahnappr, silver-gilt buttons, for the sleeves,¹ and much larger, with clasps, for the waist; bodkins (*Laufa príonar*), ornamented with silver; Keöja, chains of sorts; Hálsfesti for the neck, and Herðafesti for the shoulder; rings of gold, silver and brass, one of them spiral and elastic; Nisti (bracelets), and Mallinda, velvet girdles, embroidered with silver. Some of the belts are plates of gold and silver, linked together, and hanging down in front almost to the knees. There is an immense demand for these curios: every stranger carries off some specimens of the old work, with which the owners are compelled by necessity to part: the country people would be buyers, not sellers. Modern imitations are made without any success at Reykjavik, but not elsewhere. You give German dollars to Páll Eyúlfsson, or to Hr Sigfusson, if the latter is sober, and they convert them into filigree work, which does not contrast well with the neat, plain jewellery of Norway, now becoming known in England. Needless in these days to warn

¹ Forbes' sketch of "Helda's buttons" gives an excellent idea of the article.

strangers against counterfeits, the "Iceland snuff-boxes" of walrus tooth are mostly made in Germany.

Near the door is a quaint bird's-eye sketch, dating from 1770, brought from the Borgafjörð Sýsla, and illustrating the dress of the time at a Bær,¹ or farm-house. In front of the buildings, which are all out of perspective, as if the painter had Chinese eyes obliquely set, stand groups of men and women, walking, riding, and working. The former have knee-breeches, and one of them not a little resembles in suit the portraits of Doctor Johnson. There are two sawyers, and others ply the iron-shod wooden spade, of which a specimen hangs in the room. The women, raking hay, or pumping, drawing, and carrying water in pails, bear the Skaut-faldr, now confined to Sundays and festivals. Another portrait of a woman (1772) wears a foulard round the head, instead of the skull cap or foolscap. A curious pencil sketch, probably copied from the original in the Skarð church, Breiðafjörð, shows Daði Bjarnarson (ob. æt. 68, A.D. 1643) and his wife Arnfrydur, both kneeling with cuffed hands: he wears a Skegg (beard), in cut and shape most like a tile, huge trunk hose, tight stockings, and shoes with big rosettes.

The same room contains a variety of domestic implements, especially worked tapestry: in another part specimens of large-meshed white lace are preserved. There is a bed, dating from 1740, box-shaped, but not so much as the modern: on the outer side the occupant and the clothes are guarded by rudely carved Rúm fjöl (bed foils) or planks, five feet long, still used here and at the Færoes. Being carpentered into the chamber-walls, the other side requires no such protection. Curtains shelter it from the cold: there are coverlets and a night-cap, in those days often used as a day-cap; and the outer corners are supplied with rude human figures. The mannikin at the tester holds a kind of candlestick, evidently to facilitate the practice, pleasant but wrong, of reading in bed. Upon the top of a press stands a lantern, with scanty glass, and woodwork rising flamboyant, or

¹ M. Gaimard deduces this word from the Germ. Bauer, peasant; evidently an error. The North of England names, of which twenty to thirty end in *-by*, e.g., Kirk-by, derived the suffix from the Danish and Swedish *-by*, which is = Icel. Bær (Cleasby).

rather like green sausages, above it. All the rooms contain upright planks, grotesquely carved: these are lineal descents from the consecrated high seats of the heathenry, and in more modern times they were ranged round the hall, with hangings between. One of them shows a mermaid with pendent bosom and child; of course, *desinit in piscem*. The single chair has a tall carved back, and inside the two doors are sets of ornamental iron work. The quaint-shaped knockers are purely Roman—they are still dug up in Syria.

The weapons, which date from A.D. 1050 to 1400, are represented by old spears and halberts. A good imitation Toledo blade, with sunk midrib; daggers and battle-axes, one of which was taken from under a heap of stones in the Vestmannaeyjar; chain armour, and a variety of large and small Bigones (hones), of smooth compact basalt, for cleaning and sharpening weapons. A saddle cloth, hanging against the wall, shows figures of various animals, tolerable tambour work, in the Persian style. There is a collection of iron, wooden, and bone stirrups, and sundry prick-spurs. The cups are interesting; and one of them, probably intended for a man and his wife, contains at least a quart bottle. The finest are made of walrus teeth (*Rostungr*, *Trichecus rosmarus*), the animal being often cast ashore in the north: poorer specimens are of horn. Here we find the material for the Guma Minni, or memorial bowls; the Guðfödur's Minni, or cup quaffed to God the Father; the Heilags Anda Minni, to the Holy Ghost; the toast to the Archangel Michael, a fighter like old Thor; the Mariu Minni, of the Blessed Virgin; and the Marteinn's Minni, to Martin (*Turonensis*). The snuff-boxes are unlike the horns now used: one is an oval, with an upper plate of ivory and wood below, hooped round with brass, and containing a cullender, probably used for pulverising the leaf. Mangling seems to have been a favourite occupation; the hand articles (*Kefli*) are found in numbers: the roller is smooth; the upper stick is carved, and gaudily painted;¹ and the *étvis* are as numerous

¹ The instrument occurs in the proverb, "Svá eru Flosa ráð sem fari Kefli." *Flosa plans* are a rolling cylinder (Gr. *Oi de κυλινδροις άλλοτ' έπ' άλλα φέρονται*), the metaphor being taken from a mangle (Cleasby).

as the mangles. One case containing bobbins is fastened to an embroidery cushion; another bears date 1677. Some hold horn spoons, others razors, others buttons, and all are shaped like the inkstands of the East, and curiously but artlessly carved. There is a coarse plane for the carpenter. The weaver of rude cloth worked his sword-shaped shuttle of polished bone, yielded by the whale, whose ribs also supplied rafters, more expensive but more durable than wood. The mammal gave material for dice and draughtsmen played at Kotra (tables), and these are the nearest approaches to the "chessmen made of fish bones," mentioned in old books. There is a specimen of the Langspiel (violin), and its horsehair bow, formerly so well known in the Scoto-Scandinavian islands.¹ This instrument has three pegs for strings, and seventeen frets, but no bridge: possibly it was played with the thumb, as the Barber of Seville is still wont to do. Uno Von Troil supplies it (p. 92) with six brass wires, acting strings; but I do not understand what his "symphon" is. Mackenzie sketches it, but shows the side instead of the face; and Hooker, drawing it from memory, draws it incorrectly.

The spoils of the Old Church are not numerous: they consist of two altar-cloths embroidered in colours; the altar stone from the Skálholt Cathedral, white marble, blackened above by use; an antique monstrance with a Latin inscription; and some fine enamelled and jewelled crucifixes, said to date from A.D. 1300: many of the stones have been picked out, but the eyes remain. There is also a rudely carved salmon, supposed to have been an *ex voto*.

In the same room stand two cases (unnumbered) containing finds from a grave opened at Baldursheim in the north, and supposed to date before the Christian era (A.D. 1000). Besides a few bits of rusty iron, serving for different purposes, it has a calvaria without front teeth, and with a large occipital projection like a woman's. A third case, also from the same place, shows fragments of another calvaria, a large jaw and other bones, a small tooth-comb, and sundries. A fourth has horse-bits of

¹ The latter also has introduced the rude Scotch Posh or fiddle, strung with "Torren," the small gut of the sheep (Edmonston).

bronze and rust-eaten iron, shaped like the modern, and huge spurs with and without rowels, now unknown in the island except to foreigners. A fifth and a sixth preserve fine old filigree buttons and gold brooches, larger than crown pieces, used as fibulæ for the breast and shoulders: they are said to be pre-Christian; and the Edda (*Völundarkviða*, 24) alludes to a curious ornamentation:

“ But of the teeth
Of the two (children),
He (*Völundr*, or *Wayland Smith*¹) breast ornaments made.”

And even in modern days maternal affection sometimes mounts a sucking-tooth in a ring. The necklace beads are very interesting; some are of jade, others of crystal, and others of amber. There is a long blue bugle, not unlike the Popo bead of West Africa, and the specimen which Mr Rattray found at *Sáhíð* el *Zamán* (*Cælesyria*), and presented to the Anthropological Institute. Others are irregular tubes with green, red, and white upon black ground; the forms, and even the decorations, may be found everywhere, from the British Islands to the Arabian Desert. It is hard to say whence these articles came to Iceland, beads are indestructible as gums and cowries: of all ornaments they seem to have travelled farthest.

There are also two presses containing antiquities, presented by Mr Henderson, son of the well-known Icelandic traveller; the Lord's Prayer in old characters, ancient annotations of music, and a document with the signature of the martyr (?) *Jón Arason*, “*Biskup à Hólum*.” The seal, printed on red wax, bore a crucifix with the bishop standing to the left: on the right was a mitre and a shield charged with a lily.

The most interesting parts of the collection to me were what have been contemptuously called in Scotland “chuckie stanes.”

¹ Thorpe (*Edda*, preface, part ii., pp. iv., v.) suggests that the name of this adaptation of Vedic and Iranic artificer-gods, this northern Vulcan and *Dædalus*, may be merely an adaptation from the German *Wieland*, or the Anglo-Saxon *Weland*, and notices Sir Walter Scott's woeful perversion, in “*Kenilworth*,” of the venerable legend travestied from the Berkshire tradition. Blackwall tells us that a labyrinth was called *Völundarhús*—a wayland house; and Cleasby that *Völundr* survives in the Fr. *Galant*, and the Eng. *Gallant*.

Strictly speaking, no pre-historic remains exist in Iceland: perhaps it is safer to say that none have yet been found. At present we must believe, despite the synecdoche of "Ultima Thule," that the island, when colonised by the Irish monks, was a desert, and we must continue to hold this opinion until Mongoloid skulls or other remains shall have been discovered. The neolithic-stone age still endures in Iceland, as it does in the Brazil, not to mention other countries. Here almost every cottage, in places where iron is wanting, has a stone-hammer for pounding fish: it is a rounded ball of porous basalt about four inches in diameter, and bored through to admit a wooden handle. The general use of the article may convince students that the pierced celts and stone axes which, on account of easy fracture, were held to have been intended for worship or display, and, perhaps, for reproducing copper or bronze forms, might have been used for battle if not for work.

The stone articles in Iceland seem to be imitated from those of the outer world; and the similarity of type, extending from England to Australia, has not a little astonished anthropologists:¹ "Tant il est vrai," says Sig. Visconti, "que l'esprit de l'homme, malgré la différence des siècles et des climats, est disposé à agir de la même manière dans des circonstances pareilles, sans avoir besoin ni de tradition ni d'exemple." Hence the New Zealanders, as well as the old Icelanders, gave names to their ancestral canoes, their paddles, and their weapons. The steatite bowls might be from Minas Geraes: the material, according to the people, was supplied by the southern islands. On the other hand, Mackenzie (chap. ix.) found about Drápuhlíð, "a yellowish white substance, having a smooth, shining fracture; it may be cut with a knife, and appears to be steatite." He also mentions (p. 428) friable, white and reddish-brown steatite, near the hot springs of Reykjavik. A truncated, tetragonal pillar of bluish soap-stone, with a square cornice and a shallow cup ending in a cylinder pierced right through, is somewhat mysterious:

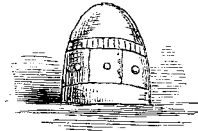
¹ The day, however, has not come when these weapons can be ranged strictly according to date, and when a narrow comparison of differences, not of superficial resemblance, can be made between those discovered in different parts of the world.

possibly it was used, and so local tradition asserts, as a portable font.

The basaltic specimens are: 1. Weaver's weight bored for stringing; 2. Sinker for fish-net, with deep groove round the longer waist of the oval; 3. Weight, dating from 1693, shaped like a conical cannon-ball, and adorned with bands and bosses; 4. Circular quern-stone with hole through it; 5. Cone, with flat base, used to grind colours; 6. Rude ladle with broken handle; 7. Pierced stones for spindles, resembling the African; 8. Various hones, before alluded to; 9. Prismatic column with runes, taken from a tomb; and, lastly, what seems to have been a club or axe. Though made of the hardest and closest basalt, with broad ribs whose angles are now rounded, the specimen is imperfect: the handle, one foot one inch long, is partly broken away, and the head, four inches broad, lacks the edged part. Still it is the most valuable of the "ceraunei lapides."



THE BASALT HAMMER.



THE STONE WEIGHT.

The east room has a large central stand of four compartments. We especially remark: 1. The seals of ivory and bone. 2. An iron *châtelaine* to which hung a knife, a skewer, and a key, not unlike those we use for watches, but with the handle more rounded: it is inscribed I. H. S. 3. A diminutive "Hammer of Thor,"¹ with a magical character on the head which discovered thieves: the only other "Miölner" on the island

¹ It is nothing but the "cross cramponné" of heraldry, and is generally identified with the mythic "thunderbolt;" hence, probably, the pre-Christian crosses of Scandinavian inscriptions. Of the sacred cross in the Huaca at Cuzco, we learn that the Incas did not worship it, beyond holding it in veneration on account of the beauty of its form, or for some other reason which they could scarcely give expression to (Garcilasso de la Vega, translated, etc., by Clements R. Markham, C.B., for the Hakluyt Society, London, 1869). It may be remarked that the pre-Christian cross, shaped as an ordinary Greek cross, when not connected with the sacred Tau of Egypt, was the symbol of the four quarters; when sur-

belongs to a widow at Hofsós. 4. Buttons of horsehair from the mane and tail; they were still used by the Færoese in 1810. 5. Two specimens of the Lausnarsteinn, a flat, hard seed two or three inches in diameter, which here, as in Cornwall, was supposed, when drunk in infusion, to facilitate parturition: the superstition vanished when it was found to be not a magic bean but only a horse-chestnut thrown ashore, like the *Dolichos urens* and the *Entada gigalobium*, by the currents. 6. Onyxes and agates, called Nachturn-steinn (nature stones), which, being banded, were held to be charms, and prevented the owner losing his cattle, whilst the Oska-steinn (asking-stone) gave him all he wished. 7. A fine Christ, evidently from a crucifix; the blood is enamelled, and the work appears to be Byzantine.

Two cases to the east contain a few early types cut in wood, and one of them is devoted to those of Hreppsey. Only one letter of 1488 remains, and there are a few capitals used by Bishop Guðbrand at Nupúfell in Eyjafjörð. The drawers beneath protect old manuscripts written with decoction of willow-bark, or with the arbutus-juice which served as cloth-dye: the colour is well preserved. A glass box hanging to the western wall contains German coins, pottery, quaintly rounded silver spurs, and Bishop Guðbrand's drinking-cup. Another and a similar case shows the only procession flag in the island; it is of faded pink silk, almost colourless, with a white linen cross and an edging of three lappets fringed with green and gold. There are also narrow webs for weaving ornamental cords.

Over the western doorway hangs an old lace bed-curtain, white, and well made. Scattered about the room are various articles—viz.: 1. A wooden plank with an epitaph dated 1755, and quite in the style of the “lying tombstone;” 2. Carved door-posts for the church or the house; 3. A large wooden chair, the arms ending in carved knights, whose horses are those of our

rounded by a circle, it denoted the solar path from left to right round the world. A later symbol of the same order was the Hindu *Swastika* (mystical mark, meeting of four roads, etc.), whose arms, according to Mr Beal, should always be drawn from left to right, and not, as is sometimes done, “widdershins,” or in the reverse way. Finally, the crocheted cross (Cruz ansata at four ends) is the Aryan symbol of the sacred fire lit by Pramatha (Prometheus).

chessmen; and 4. A beam, ten feet long, pierced with thirty-two holes—with such an instrument Penelope might have woven her web. There is also a specimen of the old Flekí, two or three boards thirty-two inches long by twenty-eight; it was drilled with holes pierced for snares of twisted horsehair, and anchored off some skerry with ropes, and stones or horse-bones. A decoy bird upon each instrument was useful to catch guillemots.

CHAPTER VII.

TOURISTS AND TOURS—GUIDES AND HORSES—HORSE GEAR,
TRAPS, AND TENTS.

PRESENTLY the steamers left Reykjavik, and the torpid little community hybernated once more: it will awake and buzz for a while when the next mail comes. In the meantime—

“The skies they are ashen and sober,
The streets they are dirty and drear.”

The weather makes the faintest struggles, even in mid-June, to be fine, but a tolerable day appears always to exhaust its efforts, and to be followed by a violent break. The Reykjavik climate is essentially fickle, and the invalid can rarely neglect, till late summer, the warm overcoat of which the cicerone at St Petersburg persistently reminds his charges. A bitter north-easter, with high cirri, and

“The shrieking of the mindless wind,”

remind us that we are in high latitudes. All the thoroughfares are deserted, and the houses are fast closed against the roaring, screaming blast.

We were the first batch of the year's tourists, arriving, however, only one day before the “Diana,” which brought with it sundry others. Whilst I remained at the capital to continue my studies, Messrs B. and S. determined to “do” the usual trip as soon as possible. A five days' delay, without books or some definite object, makes the headquarter village a purgatory to strangers. Most of them bring out an Eton Latin grammar, under the impression that, by its good aid, with a course of Matthæus Corderius, they will make themselves at home

amongst the learned. But the English pronunciation is impossible, and too often a total neglect of the "literæ humaniores," persistently distributed over long years, has swept away all memory of *musa*, *musæ*, and of *hic*, *hæc*, *hoc*. Consequently, second-hand Anglo-Latin grammars are cheap and plentiful at Reykjavik.

Those who would save time in travelling can hardly expect to spare their expenditure. My companions wisely called in the head guide, Geir Zoega, pronounced *Sögha*, and frequently simplified by the Briton to "Goat-sucker." The classical Italian name (De Origine et Usu Obeliscorum, etc.) shows his origin, but the family has drifted through Germany, and, as his grandfather settled in Iceland, he has wholly thrown off the Latin aspect. A tall, robust man, with harsh Scotch features, high cheek bones, yellow hair, and blue eyes, in earlier days he would have been most useful to explorers; now, however, he has waxed rich: he is farmer and fisherman, cattle-breeder and capitalist, boasting of house, boats, beasts, and other symptoms of wealth. These may represent a capital between £500 and £700, and almost unincumbered by expenses—a century and a half ago the same fortune would fully have contented a master-cutler at Sheffield. Consequently, Geir Zoega will only engage for short trips, and, despite rumours of \$15,000, he refused to accompany the two young "Counts d'Elbe," who came with the intention of spending some six weeks in the interior. Having business of his own in the east, he undertakes the tourists as far as the Geysirs, but he positively refuses Hekla, forage being still wanting there. During the bargain he amused me by certain points of resemblance with the Syrian dragoman taking command of a party of youngsters: the same covered and respectful contempt of greenhorns, the same intense objection to innovation, the same unwillingness of experience to be guided by "bumptious" inexperience, contrast curiously with the pliability of the Italian courier or cicerone, who thinks only of his bill.

Finally, Hr Zoega agreed to supply a tent, absolutely necessary for the Geysirs, a change of horses for each rider, and three baggage animals, *moyennant* a total of \$14 per diem—his own fee being a daily \$5. Moreover, the travellers were to feed their

nine beasts at the rate of a mark each per march. This confirms Mr Newton's opinion that, on the whole, travelling in Iceland is not more expensive—perhaps he might have said much cheaper—than in most parts of Europe.¹ Yet we find Professor Melsted, an Icelander, describing his native land to Metcalfe as “the most difficult and expensive country in the world.” During one day on the Congo, I have been asked, for simple permission to pass onwards, three times more than the cost of a three months' tour in Iceland.

Mr S. being a barrister, drew out a written agreement, which the guide signed: the precaution, however, is of little value, as the stranger is completely in the native's power, and a threat to drive away the horses will bring the most recalcitrant Griff to absolute submission. If you turn off your leader, as a certain traveller did, he will assuredly sue you in damages at Reykjavik; and for one who cannot speak Icelandic, or at least Danish, to be guideless is to be cast naked upon a desert shore. It is only fair to say that Hr Zoega gave ample satisfaction, and we only regret the more that the deceitfulness of riches has spoiled a thoroughly honest and intelligent guide.

My companions found no difficulty in starting: the dilatory Icelandic movement, of which old travellers complain so loudly, is now a thing of the past. The weather improved, as usual, after they left Reykjavik, and there were only a few showers to gladden the peasant's heart. The birds were hatching, so they did not shoot: the water, cold, and clear as crystal, wanted vegetation, without which even gold-fish cannot live, consequently there was no fishing. There had been scanty reason to complain of what the Brazilians call “immundicies”—the smaller animal creation—but a Neapolitan might have recited every morning the popular song

“Quando mi cocco a letto,” etc., etc.

¹ The trip of eight days thus costs £14, but the travellers had potted provisions, liquor, and other comforts, which may have brought the expense up to £20—£10 each. Allowing £3 for the six days of delay, in or about Reykjavik, till the fortnightly steamer starts; £6 for coming from and returning to Granton; and £3 for extras; the total of £22 easily “does” the Geysirs. Of course, those who are not hurried will pay much less.

They lamented only one thing, not having taken a pack of cards, or a cribbage board, to while away the long, slow hours of halt.

The next that effected his escape was a young painter, who came out for the purpose of sketching Iceland scenery, and who wisely chose the seldom-visited south coast. Thus he was able to imitate the *Conte di Haga, che molto vede e poco paga*; and all his expenses during forty-two days were limited to a couple of florins per diem. He resolved to buy ponies, and laid out £17, 10s. upon three, expecting after return to sell them for two-thirds of the outlay, whereas the usual hire would have absorbed \$126. And he was successful. But travelling in this way becomes exceedingly slow, as the animals must be the first consideration, if at least they are to fetch anything like cost price at the end of the journey. He secured a guide, of whom more presently: the fellow at once became painfully familiar, "independent" would be the polite word, and stuck to his victim like a leech.

Captain J. and Dr S. of the Indian Army allowed themselves six weeks for a sporting tour, which was a dead failure. Unfortunately they fell into bad hands. Metcalfe advises the traveller to engage some student by way of interpreter; and I found it a good plan in the eastern country. Moreover, even at Reykjavik, good guides are procurable. But they lent a willing ear to a certain Helgi Magnússon of the Latin School, half-brother to an Icelander, who, after two years' study at the Latin School of Reykjavik, went to England for the purpose of translating Icelandic documents, and managed, no one knows how, a good appointment at Cambridge. People here inquire if the great English university is so destitute of talent that it must come to Iceland. In reply, I can only plead British eccentricity; the same curious policy which made the late Colonel Sykes advocate the employment of the brothers Schlagintweit, when a dozen Anglo-Indian officers were as well fitted for, as they were ambitious of, being so employed. The following is Hr Helgi's *signalement*: tall, spare, blond, and clean shaven, except the long mustachio, which is in the habit of being pulled. He claimed to know English, meaning he was able to pronounce articulately a few sentences; the answer, however, was an idiotic stare, and

an ejaculated "No," invariably introduced. He began by finding fault with everything, and by telling his employers that they must cook, make beds, groom, saddle, and unsaddle for themselves. Presently he scented English provisions—feeding amongst these people is all-important as to the Bedawín—and the discovery greatly modified his tone. They did not, however, come to terms; and he amused himself by doing all he could to hinder the tourists. The same worthy called upon us, proposing an exchange of sovereigns, not for our benefit, a form of annoyance recognised by previous travellers; he also brought a cow's horn, very badly cut, for which he modestly asked a pound sterling.

After maundering about for several days in despair, the travellers



THE "PRETTY GUIDE."

engaged one Haldór Johannsen, a saddler, and certainly one of the ugliest saddlers in the world. He began by objecting to the English ropes, of which they had brought a store, and he could

not travel without Iceland gear, which stands about as much work as twisted straw. He proved himself a perfect Mark Tapley on the road; but, on his return from the first trip, he so abandoned himself to the cultus of Bacchus that he could not be re-employed. This party lost time and money in purchasing nags, at first they were asked £10 for animals worth at most £4. They bought, after weary bargaining, three animals, for £7, £8, and £9, and the consequence was that two out of three came to grief. They also brought out a very extensive "kit," which they flattered themselves would readily sell after return to Reykjavik—it fetched the liberal sum popularly called "half nothing." They made two trips, one to Hekla viâ Krísuvík, and the other to Surts-hellir, praised the fishing, and found the shooting a farce.

As will be gathered from the following pages, the Icelandic Fylgimaðr ("fugleman" or guide) is still in a rudimentary stage. He is apt either to lag behind like the African, or to gallop ahead like the Gaucho of the Pampas, utterly reckless of his charge. He is sure not to be cunning in those details of country which save so much time and which, ignored, so often lead to grief. As a rule, old paths have been broken up by weather, and only those on the spot can know the later lines: when, therefore, you see the least doubt, engage a temporary assistant for a few marks, which are not wasted. He has one great merit: his language is not foul, and he does not "exhort the impenitent quadruped" with the emphasis of his brother bipeds elsewhere; he believes that swearing will cause his tongue to become black-spotted. In point of conservatism he is a Hindu; wain-ropes will not move him from settled "use and custom." Those I found of most account were Páll Eyúlfsson, Sigurð Jonasson, who accompanied Lord Dufferin; Einar Símonsson, and Bjarni Stefansson, the two latter speaking a little English.

And now to add a few remarks about Iceland ponies,¹ concerning which gross exaggeration prevails: one traveller, who is generally remarkable for sobriety, would ride them "over the ruins of Westminster Abbey." The origin of the horse, as of the

¹ The figures have been treated in the Introduction, Sect. VII.

man, is Norwegian; these "norbaggers" reminded me of the little hay-fed nags of the Continent, and of Wrangell's Siberian travel. In Scandinavia, however, breeding has done something, here nothing. No signs of an indigenous horse, like the zebra-shaped Hipparion of Europe, Asia, and America, have yet come to light, but the old bones dug up in several parts of the island show a much larger animal. The "troops of wild Icelandic horses, which shift for themselves even in the severest winters, when they perish in large numbers," is a traveller's dream, like tales of wild camels. Traces of the pony breed are found in Ireland and the Scoto-Scandinavian archipelago, not to mention New Forest; the Asturiones, or small mountain-ponies, which were so called, says Sir James Ware, because imported from the Spanish Asturias, waxed scarce during the end of the last century, and now they are well nigh extinct. The sheltie of Hjaltland has been wrongly derived from Iberian blood: it is also becoming rare, and, curious to say, though enjoying a much milder climate, and a comparatively plentiful forage, it is more stunted and of lighter build than those in the more barren north. The Orkney "garron" was an admirable animal, and, *pur sang*, like the old Norman, which I have seen in the "haras" of Abbeville, fine-limbed and high-spirited as an Arab. The common "garron," a mixed breed, was short and ugly, but an excellent roadster, like the Tartar Yábú, which we have allowed to become obsolete in India: ten years ago it fetched £5; the race has been ruined by breeding for size, the sires being big hammer-headed stallions from Aberdeen. The Færoese, unlike the Icelanders, have sold off all their best animals, and it is hardly fair to judge from the refuse. I would back against any Icelander, a New Forest pony or a Maharatta "tattoo;" and my Kurdish Rahwán at Damascus would have knocked the wind out of any in the island.

It has been shown that the total of horses in 1871 was only 3164 over the number assigned to 1804. The reason is not hippophagy, which is almost unknown, but which might have been practised with advantage save for an obsolete superstition: as a rule, also, those classes are most particular about their diet who can the least afford it; and the obsolete Mosaic Code, so well

adapted to its day and latitude, has not yet been exchanged for the sensible omnivorous system of China. Thus, it is now said, while horses are eaten in France, they eat us up in England. The three commandments issued by Christianity to her proselytes were, "Marry only one wife, expose not your children, and feed not on horse-flesh." These were accepted by all parts except the southern coast, where hippic meat, like the Giftessen (arsenic-eating) of mountainous Styria, ensured a good complexion; and it is well known that in the Far West men prefer "three-year-old mustang" to bison or common beef. But Hrosseitr became a word of reproach, and Iceland gave up what was supposed to be unhallowed flesh offered to idols; the horse being, as in the Aswamedha of the old Hindus, a great and ceremonious sacrifice. The Devil always "scratches his writing on a blighted horse's bone;" the heathen swore by the "shoulder of a horse and the edge of a sword;" and the horse's head formed a "nithing-post" of peculiar efficacy. The truth is, that the Icelander wants every blade of grass and hay for his cows and sheep; he, therefore, either "traded off" his colts, or cut their throats and sold their skins. Under the influence of a ready market, breeding will again be resumed.

The export was caused by the rise of prices elsewhere; the New Forest nag advanced, for instance, from £5 to £12. But the Icelander has had the sense to part with inferior animals, jades fit only for the knacker and the kennel. He has a curious idea that ponies used in the English mines are first blinded, like decoy singing-birds upon the shores of the Mediterranean.

In 1770 the horse fetched \$3 (rixdollars, say half-crowns). During the early part of the present century Mackenzie and others paid \$6 where we now disburse pounds sterling. In 1862 a picked animal sold from \$12; this price, in 1864, rose, as has been shown, to £5, 5s. a head. The Consular Report of 1870-71 says, "The price for a good horse averages at present from £2 to £4." During my visit, the mean sums paid by the steamers were £3 to £4. Baggage ponies for travellers commanded £5 to £6, and good riding-nags £7 to £9. Perhaps no article in Iceland has run up so rapidly as horse-flesh, and the resident feels it as well as the traveller. This, however, is, as I have

shown, probably a provisional grievance; and, despite the inconvenience, the trade is perfectly legitimate. Happily for Iceland, no class corresponds with our small fund-holder, who is in a fair way of finding life in England impossible, and who must disperse, like the large British colony of small rentiers in Paris, when income became stationary and outlay became imperial.

Henderson (i. 19) and other travellers make the "Hross"¹ average from 13 to 14 hands. If this be true they have fallen off since the beginning of the century, which is improbable as the degeneracy of peaches recorded in "Gil Blas." Baring-Gould says 14. I should lay down a high average between 12 and 13: out of a number which were measured the shortest was 10·3; and only one in a dozen barely reached 13. The curious fact that the climate least fitted for the horse, and the land where it fares worst, produces larger and stronger animals than the southern islands, can be explained only by the superior size of those first introduced. After a time the eye becomes accustomed to the stunted stature, at least when not contrasted with a tall rider. The best specimens are shaped somewhat like the Suffolk "punch," with big barrels, thick necks, and short, stout legs. They have round noses of the Norman type, bearded chins, well-opened eyes, ears short and pretty, erect manes, and the square box-head which appears in the classical horse of medals and statuary. The strong points of the fussy little animals are the manes and tails; the former even when hogged conceal the crest like a lion's *crinière*, and if not cut would hang to the knees; the latter would be ornamental but for the local fashion of thinning them at the roots, and of tying up wisps of hair in small knots.

The horse in Iceland is an inevitable evil, the climate being too cold to breed mules. The beasts show many signs of falling off besides size, and we should wonder if it were otherwise. Stallions are allowed freely to run with the mares; and the

¹ Hross in Icelandic (Germ. Ross, Fr. Rosse) is singular and plural. So Chaucer makes "hors" plural, and we still say, a troop of horse, like a flock of sheep. So in Shetland Russa-bairn (stallion, male) is opposed to Hesta-bairn (mare) child. The Hengist and Horsa of our innocent childhood were derived from the same words.

evil of inbreeding is exaggerated by the small number—sometimes a parish will not have more than one. In the classical days of Iceland men rode entire horses, and a favourite festal pastime was a fight: the Hesta-thing (“horse meeting”) suggests the champion camels which bite each other at Smyrna. It seems to have been a brutal custom, as the animals had to be flogged, like the older sort of Chinaman soldier, to the fray; what a contrast with the Indian “man-eater,” which safely faces a tiger! The Sagas also mention racing as a popular amusement: this, also, is apparently obsolete, at least I never saw it. Stallions are now considered too fierce for general use, and yet, like all the animals in the country, they will be found exceptionally free from vice: mares also are rarely ridden, and the people tell you that they are incapable of hard work, of course, an utter prejudice; in fact, geldings, as with us, are the rule. The Arab, it is well known, mounts the mare because she has more endurance and is less given to neighing at times when surprises are intended: the Spaniard preferred stallions, and to show his contempt for the Ishmaelite, put the jester and the buffoon upon the mare—this custom has prevailed throughout South America, though its origin is now forgotten, and “Yeguas” are still slaughtered in thousands for their hides and fat. And there are superstitions about marks and colour which remind us of complicated Arabian system; for instance, a horse marked with a cross will never drown you.

The effect of promiscuous intercourse appears in wall-eyes, locally called “glass-eyes,” which are painfully common, and in coats of many colours, fit only for the circus. The noble bay, chestnut, and iron-grey are rare: many are skewballs, and the piebald, which in Texas would be called “Paint,” and in the Brazil Jardim (a garden), are perhaps considered the best. Some writers declare that the white are most esteemed, and the black least—I found both exceptional as in the Arabian breed. The foals often wear long fleecy coats, and here the renowned Mr Barnum might have bought many “woolly horse,” real, not manufactured; but whether the few would have lasted in the latitude of New York, deponent sayeth not. Of course they are hardy and sagacious from mode of life. In winter none but

favourites are stabled and fed on hay; the others are left out to fare as they best can, on the refuse of the cows and on offals, such as fish bones and heads.¹ At last, when it becomes a matter of life and death, the poor brutes are put under shelter, and fed with a few handfuls of fodder. On the other hand, they are perfectly free from the dire cohort of equine diseases produced by the close and heated stable.² Like the sheep, they thrive upon the many and plentiful fuci that line the shore; a similar necessity teaches the horse in the interior of the Brazil to paw open and eat the cactus flesh. Thus the price is nearly all profit to the breeder. During the cold season Icelanders ride very little, if at all: where the snow is deep and hard they use sledges and rough-shoe their nags. They are ready for travel in early June, although I was told the contrary in England by those who should have known better; but the razor-backs at this season require carefully-padded saddles. From that time they get into better condition; they are best in July, but in August again they are soft and blown out by too much green meat. All are shod, and very badly shod; the stones are sure to injure the frog, and Arab plates would be a great improvement. The only remedy known for sore backs and saddle galls are cruel setons in the breast: the Raki of Syria and the Caxaça of Brazil, applied when the saddle is removed, would prevent much of this evil, but spirits are too precious for "uso esterno." The ears are cut off, not to prevent the Pasha impounding them, but as a mark; and the nostrils are slit with the silly idea of improving the wind. They never see grain, which they must be taught to eat, and salt is not regularly served out to them. From perpetually licking one another's skins, they supply fine specimens of *Cegagropiles*, the light and

¹ Nothing easier than to teach the horse meat-eating and fish-eating. Where little and highly nutritious food is forced by the necessity of saving weight, the habit is acquired in youth.

² In this matter the last few years have seen a wonderful improvement amongst us; still, I have visited wealthy stables in England where the thermometer stood at 72° (F.), equal to Boston Hotel, or to an Anglo-Indian London Club. It is difficult to reform the evil where grooms sleep above these ovens, where hot air saves grooming coats, and where the vet. requires to make a livelihood. The perfection of horse-stabling appears to me a modification of the Afghan system—protecting the chest and body with felts, thick or thin as the season demands, and allowing the head and throat to be hardened by cold, pure air.

polished balls of hair, the *Tophus Ovinus* of Norway, so commonly found in the stomachs of Brazilian cows. Broken wind is common, and cow-houghs are the rule.

The domestic animals of all countries bear testimony to the character of their owners: reason, or the result of a developed brain, acts and is acted upon by instinct, or the imperfect brain produce, the two being different in quantity, not in quality. Man and beast learn to resemble each other much after the fashion of Darby and Joan: the servants of menageries, like those of mad-houses, become peculiarly brute-like, whilst animals educated by men have an unspoken language which it is not difficult to understand. In Iceland the horse has learned much from his master. The hardy and hard-working little brutes are, like other quadrupeds and bipeds too, curiously headstrong and self-willed. Their obstinate conservatism is offended by anything savouring of innovation: I tied a bell to the leader, and he showed his resentment by all the pettishness of a spoiled child; as a rule, they appeared rather frightened than pleased by the music so attractive to the Spanish mule. Each has his own peculiar likes and dislikes: one shuns the puddles, objecting to wet feet, another avoids rock, and all hate loose stones: the lazy tread in preference upon the tops of the grassy mounds, bog-trotting like humans; and these are the least safe; others step in the hollows, as the trusty Brazilian mule in the "caldeirões." They resemble the riders in their dislike to beaten paths, probably from experience of cracks and holes; they will at times resolve to go no farther, and they have been known to stand in the same position until killed by the cold. Upon bogs and swamps they seem to feel the surface, to walk with the head down, and noses depressed, smelling the ground. They change pace and swerve, as if starting, when they come upon crevasses, with a suddenness and an agility which has unseated many a traveller; and like mules and asses, they are unwilling to part company—another sure sign of ignoble blood. Those over nine years old are much preferred, because more prudent and experienced: they are even better when nearly double that age, and they live from twenty to twenty-five years.

The best roadsters are natural pacers (Skeið hestar, or Vakurhestar), moving like the camel and the elephant, two legs on one

side, instead of traversing: this is the well-known Paço, introduced into Southern Europe by the nearer East. Many have a false amble (að valhopa), cantering with the forehand, and bog-trotting behind: this the people like because it easily covers six miles an hour. They are utterly untrained to trot and canter (að stikkva); consequently, all go false: I cannot but think the trot proper a purely artificial pace; in the so-called wild horse it serves only to connect the walk and the canter, and it is never kept up for long distances. This does not apply to the amble or shuffle of the Barb and his American descendants: the former was driven to this specialty by the necessity of raising the fore-legs to clear rough, thorny ground, and the peculiarity has been artificially developed. If you attempt to make them back, they will probably, like Argentine animals, tangle their legs and fall; few are accustomed to leap, and the smallest ditch makes them spring like buck-jumpers when put to it. They might be expected to prove surefooted, yet systematic tripping and stumbling on easy ground are inveterate evils; the people blame the rider when the pony breaks its knees, and the arms ache with the exertion of holding the brute up. I once tried, for experiment, giving my nag its head upon a tolerable road, and it came down with me three times in a few hours' march: my military saddle, however, was unusually heavy; and, of course, increase of weight requires exceptional animals.

It is a good plan for the first day or so to use spurs, which, as I have said, are now all but unknown to the people. The only instrument of punishment is a whip with short handle and strap, the latter always coming off, and if this be absent the animals become utter slugs. The comfortable traveller brings with him an English whip, and the long thong is very useful for driving. Education is confined to making the animal stand still when the reins drawn over the head are thrown upon the ground: the custom is general throughout Australia and the Argentine Republic; and I should recommend it to cavalry where the thongs are not always liable to be wet and dirty; they are great at climbing mountain-paths and hopping from rock to rock; they ford rivers well, walking crab-wise with heads up stream, and in the "scour," violent shallow water, they kneel to their work. The

worst footing for them is the boulder-paved bed. If they happen to fall in fording, the best way is to slip off on the current side, to hold the rein firm, and to steady one's self by pommel or cantle till the shore is reached. Those taken to England soon sicken under change of diet and climate; some have done well as ponies for children, and I saw a neat pair driven at Edinburgh.

There is an art in riding these little mustangs, and an Icelander will get more work and better pace out of them than a stranger. Of course the slowest gives the rate to the caravan, and this will sometimes not exceed three miles an hour—making the journey an *écœurante corvée*. All assure you that they never kick; you hear the same in the Argentine Republic; you believe, and sooner or later you are kicked: two Englishmen of my acquaintance suffered in the flesh, and an Iceland pony suddenly did its best to knock out my teeth. Rearers and bolters are rare, and I saw only one biter; the people are not brutal to their beasts, but only careless. Temper never shows so much as when they are loaded; the worst are the riding animals, which lose all manners, apparently feeling insulted by the proceeding. They will never keep Indian file like mules, they rush past one another, bumping and striving to destroy the traveller's traps; if a load happens to become loose or to shift on one side, there is a grand scene of plunging, of lashing out, especially at pots, kettles, and kegs, and of running away till everything is strewn on the ground. About evening when hunger becomes imperious, and especially where forage appears, they wax wild as antelopes.

“Omnis commoditas sua fert incommoda secum;”

but this is an inconvenience worse than anything that I have seen, even when travelling with half-broken Brazilian mules.

The people boast that their shaggy, long-backed, short-legged poodles equal the noble blood of Arabia, cover 100 miles a day, and carry 300 lbs.—Uno Von Troil says 400. The Thingmanna-leið, the recognised march to the Althing, however, is from twenty to twenty-five English statute miles, and I have found 100 lbs. to be a full baggage-load.¹ By proper management, the Lest

¹ This is a general rule: 65 for an ass, 100 for a pony, and 120-150 for an ox. The latter are not trained to carry luggage in Iceland, and it is hard to tell the reason why.

(caravan) may be pushed on at a pinch some thirty-five to forty miles a day, but every third march should be followed by a halt. On one excursion we allowed three rests in twenty days, but the nags did not recover for many a week. They must not start before ten or eleven A.M., after they have had a good morning feed. They are allowed to drink when and where they please, but only after the chill is off the water. The Icelander seeing a fresh, green grazing, generally dismounts to let his animal have a bite and stretch its limbs, like a dog fresh from sleep. A careful man will walk up and down the heaviest places. About three or four P.M. there is usually an hour's halt and, during the summer, as the nags suffer greatly from the sun, night-travelling, if we can so call it, where all appears one night and one day, is the rule. Straying is also an inveterate evil, especially in bad weather; the hobbles are rotten cords or withers fastened by bits of sheep's shanks. Side-hobbling must be attended to; if only the forehand is tethered or knee-hobbled, the beasts have learned by practice to hop as fast and as far as kangaroos, and they will easily waste the best part of an afternoon. Like the Norwegian nags, they are exceedingly fond of rolling in the sand, and consequently the saddle suffers. The shoes should be inspected after every march; in the country parts they may generally be replaced for \$1 the pair.

Icelanders ride from the days "when they first see the blood upon their teeth;" their foot gear and the nature of the country incapacitate them from walking, yet with our shoes they would soon learn to climb well. There is a fashion in these things. The Mamlúk Bey would never cross even the street except upon his mare; and the Brazilian church-goer will send many miles for his horse to ride the same number of yards. A walker in Iceland is a low fellow, like the "Zalamah" of Syria. The islander mounts as often on the wrong side as not—of course every cavalry-man should be trained to do the same. His long back and short legs make him a curious contrast with his dwarf monture, and apparently he is easily dislodged—I have seen men come off even when the animals are only bogged. Another element of grotesqueness is the perpetual hammering of the unarmed heel against the animal's ribs; this "devil's tattoo" keeps

the feet warm, and the horses will lag without it, as the Egyptian Fellah wakes when his water-wheel ceases to creak and groan. The effect is an indescribably loose and shambling seat.

Although cavalcades look tolerably well from afar, individuals are ungraceful and unhandy riders compared with the Gauchos: an Englishman observed to me that the latter will do in the dark what would puzzle the former in the light. The general seat is somewhat like the English, a kind of *juste milieu* never adopted by purely equestrian races. The Eastern horseman, take the Tartar for a type, sits his horse with "crumpled legs," as if upon a chair. The Western, that is to say, the peoples of the New World, without exception, stand, as it were, upright with legs apart, riding by balance alone. The Oriental style was probably suggested by the greater steadiness of aim, with bow or gun, obtained by rising upon the shovel-iron stirrups clear of the animal's back. The Occidental seat was evidently the result of long weary marches over monotonous prairies and pampas, and it never leads to rupture like our cavalry seat; riders carry little weight, and their waists are not tightly buckled down so as to press upon the part most likely to give way.

It is a spectacle likely to be remembered, the shoeing of Iceland ponies by the farrier, who is almost always unprofessional. Five men, without including half-a-dozen spectators and advisers, bodily engage in the task; one holds the cruel twitch, two hang on to the several limbs, one or two hold up the hoof, and number five plies the hammer. And the result is that in travelling you must always expect your animals to be pricked.

The traveller should take out with him a comfortable pony bridle, if he intends to ride far. An Iceland bit is horrid to look at, but the long, heavy mass of brass is never cruel; the chain is not tightened, often, indeed, it is absent, and sometimes a bit of cord does duty. Happily for the horses, they have no curbs, and I have many a time wished that we in England could unlearn the use of them, or rather learn to use them only when required. Nothing more unpleasant than to see both sexes in Rotten Row worrying their animals into perpetual fidgets, and making them throw up their heads like giraffes on the run. And this is not confined to Hyde Park: at Edinburgh I saw an

escort of one of our best cavalry corps so pulling at their curbs, that every charger seemed to be upon wires. A light hand is not given to every rider, but all can spare the mouth by using the snaffle.

Upon the whole, I should say, hire your nags. Buyers no longer sell for a song, as the foreign horsedealers are ready to pay fairly for good animals; yet besides the risk of being jockeyed—and in the matter of horseflesh the Icelfander is quite the peer

“Of a Yorkshireman hippodamoio”—

the owner, as has been said, will be obliged to travel slowly, and he will incur additional troubles where the inevitable amply suffice. Tolerable riding beasts (Rið hestar) may be hired for \$1 (= 2s. 3d.) a day, and baggage-animals (Puls or Klifa hestar) for four marks. The hire should be paid after return. The guide is sure to take the best, in order to whip up stragglers, and he will be the more careful of his monture if he be its owner. Formerly, dogs trained to bark and to keep the Indian file straight, always accompanied caravans: now they are rare and dear. The use of the Madriña, or bell-mare, is utterly unknown—what does Henderson mean by making the Arab's bell-camel go last in the line instead of first? An extra baggage-animal, besides remounts, is always necessary: the day of the Hesta-kaup is long past when you could exchange a lame or tired-out animal at any farm-house.

The Iceland saddle (Hnakkur), well stuffed and provided with a sheepskin, can be bought at Reykjavik at prices varying from \$15 to \$50, but the old campaigner will prefer a roomy old English hunting saddle, duly prepared for “razor backs.” The woman's saddle (Söðull) costs from \$40 to \$80: it is a kind of arm chair, fronting the near side, and covered with brass ornaments: the feet are supported by a piece of board; and the whole affair is very dangerous—M. l'Abbé Baudouin saw a woman drowned when crossing a not very rapid river by the fault of her riding gear.¹ The lower classes ride à *califourchon* like the *hautes et puissantes dames* of the old noblesse de Cam-

¹ Astraddle was doubtless the earliest form of feminine seat, yet Mr Newton found at Budrum a statue of Diana sitting her horse sideways.

pagne, and roll off like bundles of old clothes. However unseemly, the straddling style is ever the safest, and I should strongly advise the seat *en cavalier* in countries where the side-saddle might lead to accidents. The form of riding should be that of the Libanus, with a long arm and a short bridle, always ready to hold up the animal, but never attempting to check it. And those disposed to *vertiges* should look at the bank, never at the fast-flowing water.

The baggage will be a perpetual trouble. I deposited at the rooms of the Anthropological Institute a specimen of the Klifberi (crook-saddle), the Klibber of the Shetlands, with its pegs of reindeer horn, so useful for fraying everything they touch. This article will cost the stranger \$3 to \$6. There is, however, a modern and improved form, which is far worse; the arch, banded with iron, rises some five inches above the animal's back, and effectually destroys whatever rubs against it. If the people could be induced to adopt the Otago pack-saddle, used by the transport trains in the Abyssinian expedition, and commended by Messrs Freshfield (Caucasus) and Stanley, it would be invaluable. I also exhibited specimens of ropes with horn circlets, for making fast the luggage; they are expensive as useless, and \$3 buys a very small supply. Finally, I showed the popular "namdah" of the island, two heavy slabs of turf, not unlike a very thick mat: they are the fibrous roots of the buck bean or marsh trefoil (*Menyanthes trifoliata*), in books called Hor-blaðka, but here known as Reiðinga-gras. The damp heat produced by this article acting upon chafes causes back-sores, which are sometimes fatal: the Færoese smoke and chew the leaves of the "Bukka Blaa" as tobacco, and hold that in infusion they cure scurvy. In the pagan days of Iceland, strips of buck-bean turf made a yoke under which criminals were compelled to walk; and when two men swore brotherhood or foster-brotherhood, they passed through an arch of three long sods, whose ends were attached to earth, and whose centre was raised by a spear.

The Iceland box is very like that which old-fashioned Brazilians use for mule travel: it admits wet; it readily falls open; and, when tourists are numerous, it is not easily found at Reykjavik. Mr Shepherd, of North-West Peninsula fame, had a

model pair made by Silver & Co., which own but one disadvantage—being “un-Icelandic,” the guide will object to load them. One writer sensibly advises travellers to pack up and to roll everything down the staircase; if the cases stand this test, they may be passed with approval. Still everything will by degrees be smashed and spilt: cartridges will be crushed or shaken loose; salt and sugar will be mixed; oil and spirits will swamp books and flies; and collections of botany and geology, unless inspected every day, will be lost or damaged; strong tins will be crushed like paper; even cast-iron would not be safe. The scene on unpacking for the first time after a march is “a caution:” Iceland in this matter reminded me of Blá-land (Blue Land, *i.e.*, Blackland), where the ingenious negro managed to split a Papin’s Digester, making me “marvel how.” Saddle-bags are hardly fair to the ponies, and carpet-bags and canvas-bags being strange luxuries, will be stowed away over the boxes, and will be worn through by the hide-lariats which assist the rotten woollen ropes. Though bred to loading from his childhood, the Icelandic guide has neither the skill nor the appliances of the Iberian or Brazilian “Arriero;” anything like a miscellaneous load will at once be shaken off by the rough jog-trot of the ponies; the girths break, and the halts for reloading become hourly, and even bi-hourly. There are two ways of conducting a caravan: one is to drive the animals loose (að reka hestar), the other is to lead them (leiða hestar í taumi, *i.e.*, in team); the latter is generally done by the care-taker (Lestamaðr) when approaching the farmhouse-tún, and halters are fastened to tails in a way that would surprise a Syrian thoroughbred into the height of misbehaviour. This “cringing,” as Shetlanders call it, is also the tether for short halts, and it proves effective enough, as they can only wheel round in a narrow circle—vicious withal.

The traveller will find a tent necessary in the interior, but only on account of the rain. During their September excursions, when the farmers ride considerable distances to collect sheep from the distant pastures, they camp out like Bedawin: as amongst the Canadian Indians, this change from the super-heated atmosphere of the house grows a plentiful crop of colds,

rheumatisms, and lumbagos. When they travel with baggage, they carry tents like miniatures of the East Indian "pál," and the large inmate rising from the minimum of space suggests a "Jack in the box." Two uprights, four or five feet high, are connected by a cross-pole of five to six feet, and over this frame is thrown the cover of coarse white Wadmal, braced by cords at the edges. The flaps have small holes for wooden pegs, generally three behind, and the same number on each side; when these are lost, stones and turf (Siberian fashion) do duty for them. Goods not likely to be injured are piled outside as a "break-wind" and, even when the fore-flap is closed against rain, two men will stow themselves away inside. My friend, Mr Robert Mackay Smith, kindly lent me a little bell-tent, which had already seen service in Iceland, and which proved uncommonly useful. A mattress is usually held a necessary, but I found a Syrian Postín of black sheepskin spread upon a caoutchouc, by far the most satisfactory article. The traveller, however, must beware of "waterproof blankets," which are sadly apt to belie their name in an Iceland "shower."

Writers who know Oriental travel only by books are fond of finding reflections and resemblances in the far north; the differences, however, are far greater, and the general likeness is soon destroyed by the details. The horse, the tent, the bivouac, and the desert are salient points of similitude; the want of life, of colour, and of picturesqueness, the main accident of the East, soon break the spell. And the traveller in Iceland will miss many things of which he has read, as the "kiss of peace," the pulling off boots, etc., by the daughters of the house, and the parting salute by way of good night. These things may survive on the rarely visited south coast; on the beaten tracks they are of the dead past—at least I never saw a trace. Civilised coarseness and polite vulgarity have made Icelanders deny that the custom of public undressing ever existed: they are wrong to be ashamed of it. The removal of muddy boots, wet stockings, and drenched garments, without any sense of the "sho'king," was a sign of innocence; the action was without any sense of impropriety, even as the primitive matrons and maidens of St Veran thought it uncivil to leave the room before the guest was fairly in bed.

CHAPTER VIII.

EXCURSIONS ABOUT REYKJAVIK—THE ISLANDS—THE LAUGAR OR
HAMMAM—THE SOUTHERN LAXÁ OR SALMON RIVER.

THE weather appears to be that of the Inferno-circle, especially rich in—

“La piova
Eterna, maledetta, fredda e greve.”

However, we take heart of grace to visit the islands. A boat is readily found at the Bridge-House pier, the centre of industry. Here are knots of fishermen, who might be in Leith, save that they are a wee bit rougher; and the stout young women labouring with coals and rolling up barrels of spirits, reminded me of the Teutonic emigrants to Rio de Janeiro, where each one would girth double, and probably weigh treble, the average *Brazileira*. At times there is a lively scene when ponies are shipped, an operation managed very rudely, not to say brutally: the animals are dragged or driven down the slimy, slippery plankway, and are forced to spring into the nearest barge; they are accustomed to ferries, but not to this kind of embarkation, which barks the shins and wounds the hind legs. At times a little animal is jostled off the narrow gangway, but instead of falling or leaping down, it clings like a cat with the forelegs, and holds on long enough for men to run down and catch it in their arms. The most amusing scene was when an Englishman inflated a water-proof cloak, the Halkett-boat, and another, taking in hand two apologies for paddles, began a series of astonishing gyrations. All Reykjavik flocked to the pier, possibly under the stimulus thus poetically recorded:

“Pull him out! pull him out! he fell from yonder boat,
We shall either get a sov'reign or a one-pound note.”

They were disappointed, however, for the Britisher gallantly held his own, and taught the spectators “a thing or two.”

A few minutes of sharp sailing placed us at Engey, meadow-islet, the central of the three largest which defend the Rade of Reykjavik. It projects to the south-east, a long spit of loose rocks, covered, as usual, with fucus¹ and seaweed: here two huge ravens are hung up as scarecrows to keep off their kind, and to frighten away the great Erne or cinereous eagle (*Falco albicilla*): this determined enemy of the eider duck sometimes haunts the Laxá mouth. The "beneficent palmipède" is about two feet long, and weighs 6-7 lbs.: it swims the water gracefully as a swan, and is a strong and straight-flying bird, giving excellent sport: the drake's plume is silver, tipped with jet; the duck is much more modestly clad. The Æðr has a good time of it in Iceland. Their homes are, like those of olden commerce, the islets near the coast; they will not build, as some travellers have related, in inland lakes, and they are rarely seen ashore, preferring damp rocks, where they can feed on seaweed and insects. From its haunts dogs and cats are carefully excluded. No salute must be fired at Reykjavik for fear of frightening "somateria mollissima." The drake is sometimes poached after the breeding season in August and September: I never tasted it, but should imagine that the flavour must admirably combine fish and sea tang. The people declare the flesh to be excellent eating, worth all the other game put together, but fine and confiscation of the offending weapon await the poaching gourmand: the *amende* is a rixdollar per shot, and if the offence be repeated, confiscation of the gun. How we longed to see this happen to our Cockney friend!

The landing-place is the normal natural pier, a horrid mass of slimy, slippery boulders near a small curing establishment, whose

¹ Information concerning them may be met with in Gosselin (*Historia Fucorum*): travellers have paid scant attention to this branch of botany. The wracks feed man and beast, and serve for fuel, bed stuffing, and other domestic purposes: consequently some forty-four kinds have been described, especially that impostor, the *Zostera marina*, which lies in loose heaps. The most common are the *Fucus palmatus*, *Saccharinus esculentus*, *edulis*, *funiculaceus*, and *digitatus*. The first-mentioned is the Sol, eaten in Ireland and in Scotland, where it is called Dulce: at Oreback (Eyrarbakka), it sells for 70 fishes per voet (= 80 lbs.). The second, *F. saccharinus* (*Alga saccharifera*), is the Welsh Laver, whose spirally-twisted leaves, six feet long by one broad, become straight when dry. In the Shetlands the larger fuci in general are called Tangle, Tang, and Ware, and are extensively used as manure.

rich aroma made us hurry frantically past, kerchief over nose. Here the islet is a strew and scatter of cods' heads, cods' bones, and cod's sounds: they would be the best of compost if systematically used. Hopping from hillock to hillock of fishy grass, we reached the large and prosperous-looking farm-house, which occupies a domed rise to the north-west. The owner, Hr Christian Magnússon, was superintending his eider-down: he lives too near Reykjavik to ask us within his doors.

We then walked over the tussocky ground to the west, where the warm exposure has special attractions for the brown mothers. Our companions were troops of noisy peewits and terns: the former are spoil-sports, as in the Brazil, where I have often been exasperated into giving them the benefit of a barrel; and the latter, here termed *Kría* (plur. *Kríur*), whence our "Cree," sweep down upon the intruder in resolute style, screaming furiously, and sometimes administering a vicious peck. Possibly *Sterna hirundo* knows that its egg is delicate food for man, and becomes a winged Timon accordingly. In places these birds seem to have fled the sea, and are found hovering over the fields in search of food: they should not be shot, as they serve to keep down the earth-worms, and here the lumbricus is a pest, as in the Færoe Islands. Poultry would be useful for the same purpose, but it causes trouble, and is seldom seen in the interior. It will be remembered that the ancient Britons kept fowls only "*voluptatis causâ*," which some understand "for the sake of cock-fighting."

Travellers describe the eider as a very wild bird in winter, but a mere barn door during the summer season, so tame that, like the frequenters of the gull-fair, Ascension, or of the Lage near Brazilian Santos, it can be taken up with the hand. We found that they scurried away from us, uttering a hoarse "errr," and only one showed mild fight in defence of her flappers. Nor did we see more than a single monogamous duck in each nest, despite the reported Mormon arrangements, strange if true. The usual number of eggs was two, proving that the first lay had been plundered; three was not, four was, rare. At this time (June 12) a few hardly-fledged ducklings appeared, and some could just follow the mother's flight. The old ones teach

their young the art and mystery of swimming, by leading them to the shore, bearing them on their backs a few yards out, and slipping from under them—a process which the tutor of my childhood unconsciously imitated. The nests, which are always near water, for facility of feeding, are built in hollows, like dwarf arm-chairs, or the old fur-cap of Istria: in the centre is a thin saucer-shaped lining of brown, grey, or mouse-coloured fluff, exceptionally unclean. About mid-July all these matrons will become frisky, gadding about the Fjörðs and river mouths.

Another pleasant excursion is to Viðey (wood-holm), the largest and easternmost of the three great breakwaters. In some thirty-five minutes we ran before the stiff breeze to the little landing-place, a hole in the Palagonite rock. As we approached the islet, it appeared double, connected, like the defunct Siamese twins, by a band which was bright green with grass, and which carried a few wild-looking sheep. We had seen M. Gaimard's atlas, and we had read of the "beautiful pillars of basaltic lava," but we did not find them. The formation generally is that of Arthur's Seat: in places the stone is sub-columnar; here and there it is quaquaversally disposed, the effect of lateral pressure, and in most parts it can hardly be distinguished from the amorphous. The basalts on the south of the island, and adjoining the remnants of a crater to the west, are best worth seeing, but again—bad is the best.

A rough path leads to the tall wooden-barred gate and weather-cock which defend the property of good Magnús Stephensen, Chief Justice of Iceland, the friend of "Baron Banks," and far-famed for his hospitalities in the olden day. Though travellers say that he rented it from the Crown, he was the owner of the islet which still remains to his family; and about 1820 he died at the satisfactory age of eighty-two. The house is a large and substantial building of stone and lime, with ten windows facing the south, a counterpart of the smallpox hospital at Laugarnes. The characteristic remnant of the monastery, which was founded in A.D. 1226, is the chapel to the west of the mansion, a solid box of rough basalt, squared only at the corners, with rude arches over doorway and windows; the dwarf "campanile," a shed perched upon the roof, shelters three bells. In

the massive red door was a huge iron key, which may date from the days of the ghostly owners. The roof is supported by heavy solid rafters, and the furniture is older and more ornamental than usual; the benches are carved, and the colours are the tricolor, blue, red, and green.

As in many country churches, the tall pulpit stands behind the humble altar which Lutheranism in Iceland has not reduced to a table, but converted into a safe for priests' vestments. The confessional still lingers in the shape of a tall-roofed chair, like that of a hall porter; it is now used by the *Prófastur* (arch-deacon) when he makes his visits, but the people no longer confide their sins to the ecclesiastical ear. Metcalfe (p. 317) seems to think that Icelanders are shrived before they communicate. The only "Reformed" remnant of the old Catholic custom is the practice of seating the expectants round the chancel, when the parson exhorts them in set phrase to repent their sins, and to amend their lives. They do so, or are officially supposed so to do, and absolution duly follows.

We looked into the western room of the old monastery where the printing-press was wont to work; the rubbish lay in admired confusion, almost as bad as the sacred hill-town of Safet can show, after parting with its typographic reliques to the curious and the collectors of Europe. The owner, lounging about, hands in pockets, prospected us more carefully than courteously. Here the neighbourhood of Reykjavik is not the only cause of inhospitality: the son of the old Chief-Justice was notoriously unhappy in his family; and the heir to the "*antiqua domus*" is locally famed as an *animal*, in the French and Spanish senses of the term. So we wandered over the island, much to the confusion of the terns and sheep, and enjoyed a charming bath in the sea to the north: the walking was foul as usual, the swamplets have not been drained, nor have the grass tussocks been levelled during an occupation of a thousand years. Of course, in Wood-isle no wood exists, but near a farm-shed upon the western half there is an eruption of turf-stacks, which show what has become of the name-giving growth.

The tract behind and about Reykjavik is an epitome of Ice-

land, which we can see in a day's work ; it admirably combines the quaking bogs of Ireland with the Pantanaes of the Brazil, the rock-slides of the Kasrawán and the metal domes and boilers of the Haurán.

"God made the country and man made the town" is a poor poet's sentimental say, which has passed into a truism, whilst every traveller knows its falsehood. The country wants the hand of man almost as much as the town does. Hereabouts, where the surface lies comparatively unbroken, the absolute absence of trees gives the dreariest impression. We do not feel the same want amongst the labyrinths of serrated ridges, where the vapours break like seas in the morning, and which are transfigured by the evening mists into glimpses of purple and golden glory ; nor amongst cataracts, "tumbling in a shower of water rockets" over the perpendicular strata of basaltic rock ; nor when fronting the inverted arches of the Fjörð-mouths, where the sweeping lines of mist and cloud are worthy the inspired pencil of Gustave Doré. And, though throughout the island there is not one spot which "smiles with corn," the stretches of bright green pasturage, with spangled flowers, relieving the blackness of the trap, serve passing well in the artistic eye to take the place of cultivation. In these places we escape from the eternal black and white, white and black, which sadden the eye in the interior.

The lakelet south of the capital drains large bogs and peat-mosses at its upper or inland end. It is poor stuff, which, however, like that of the Brazil, burns without chemical treatment, and it contains, as in the Færoe Islands, large quantities of birch trunks and bark, proving, if proof were wanted, that the land was not always bare of trees. Although the first colonists found the country wooded from the sea to the hills, here, as elsewhere, first colonists regarded a tree as a personal and natural enemy, to be annihilated with fire and steel. Consequently the land became bog, the centuries deepened and added to it, and now it is absolutely irreclaimable. Under the blessing of St Blazius, however, it supplies the people with fuel. The turf-digger uses a rough instrument, a straight bar of wood, with a side projection for the foot, and shod with a crescent-shaped

iron: it is the toysker familiar to the Shetlanders.¹ The material is stacked in early June, and by September it is ready for use; almost every family has its own turbarry, where a fortnight's hard work would collect an ample supply for the whole year. Yet the absence of fire is one of the characteristics of the Icelandic farm-house, in which the people prefer to "pig" together for animal heat, like the lower creation, rather than take the trouble of cutting, stacking, and carrying in their peat. But here probably inveterate custom perpetuates what arose from simple indolence.

The Landnámabók (*De Originibus Islandiæ Liber*), corresponding with our Domesday Book and the Book of Joshua amongst the Hebrews, tells us that in A.D. 1231 the plough was drawn by oxen and slaves. The Aryan implement, never invented by the African nor by the "red man" of the Western Hemisphere, is now simply impossible. The surface is either quaking bog, where man is easily mired and "laired;" or covered with runs and boulders of basalts and lavas, porous and compact, grey, brown, red, and black; the grey being of course the oldest. This has never been cultivated, and probably never will be. The grass land reminds you of a deserted country churchyard. Many of the warts which garnish it are originally formed like "glacier tables," those pillars of ice bearing tabular rock, which protects their bases whilst the sun melts the surrounding matter. The scattered boulders keep the lump firm, whilst the ground about it is washed away: mostly, however, the tussocky warts are formed, as on the Irish bog, the Scotch moor, and the flanks of Ben Névis, by the melting of spring-snows and the heavy rains which carry off the humus from the sides; and they show us on a small scale the effects of weathering upon hills and mountains. The water, here and in the bogs and peat-mosses, is a "gilded puddle," rich in diatomaceous silica and iron: as in parts of Ireland, it readily converts adipose and muscular tissue into a saponaceous matter like spermaceti, and it forms the "precious medicine Múmiyá" (human fat) once so highly valued for fractures and pulmonary complaints.

¹ Dr Cowie (*Shetland*, 1st edit., chap. ix., pp. 165-167) gives an excellent account of "peat-casting."

These warts are exaggerated by the treading and grazing of cattle in the depressions. Not a few travellers have asserted that the people, forgetting that grass grows perpendicularly, leave the knobs *in situ*, because a curve affords more surface than a plane. To a similar prejudice, also, they attribute the use of the toy scythe, which shaves round the lumps, wasting much time, and exposing the precious crop to be destroyed by rain or snow. The real cause, of course, lies much deeper. Firstly, there is the want of hands; secondly, there is the expense of day labour; and thirdly, a man must be certain of tenure before he is justified in undertaking such a task as levelling the surface of his field. The turf must be carefully removed from every knob, the latter must be planed away with the hoe, and lastly, the grassy covering must be replaced: after a few years the snows and showers will require the operation to be repeated. Meanwhile, the result is a short thin turf like that of England, but exceptionally springy to the tread, as if it had no solid foundation—in fact, something like a water-bed. A little top-dressing brings out a goodly crop of grass, and although we must despair of seeing even oats and rye, yet roots like potatoes and turnips might become much more common than they are. But then—the landlord would raise the rent.

A favourite walk with foreigners is to the Laug (pronounce *Lög*), the reeking spring, lying about two miles from and nearly due east of the town. The only bathing-place, especially on fine Sundays, between church-time and dinner at two P.M., it is the haunt of many washerwomen, and yet, during the last millennium, no attempt at a decent path has been made. You leave the town by the Krísvík, more properly the general eastern, road, passing the fine new prison, which is rising rapidly from the ground: the exceptionally thick walls are made of hewn and unhewn trap, with an abundance of imported lime, blackened by basaltic sand. There are apartments for the officials, and ample accommodation for all the criminals in the island; indeed, if the interior only equal the exterior, its superior comforts may act, it is feared, like our old transportation system, and offer a premium for breaking the law. On the

right, you leave the Skolavarða,¹ or school mark, so called because it was built for the College. This "observatory," as foreigners call it, is a two-storied building, ascended by two sets of double ladders: the view from the green-painted hatchway which defends the opening above lays the land before you like an embossed map. The lower story is foul in the extreme, and there are scandals concerning the uses to which it is normally put. The wooden building of old charts has clean disappeared. No place could be worse adapted than this for an observatory, at least, if magnetic instruments are to be used. The French expedition found that the surrounding volcanic rocks gave the most discordant results, for instance, $2^{\circ} 32'$ to north, and $11^{\circ} 15'$ to south, upon the same rhumb. M. Lottier (p. 35) offers the following comparison of magnetic declinations:

1. At Reykjavik, $43^{\circ} 14'$.
2. ,, Thingvellir, $40^{\circ} 8'$.
3. ,, Geysirs, $45^{\circ} 50'$.
4. ,, Selsund, $40^{\circ} 49'$.

He remarks that the first is probably correct on account of the care with which the site had been prepared, two granite blocks having been laid down upon the hard ground below the turf. The second was vitiated by a huge *coulée* of lava; the third by the looseness and Plutonic nature of the soil, whilst at Selsund the Hekla *massif*, distant only a mile to the north-east, must have exercised a disturbing effect.

Striking to the left, we pass the detached farm-houses, and hit the shingly and rocky margin of the shore, which here and there shows heaps and scatters of sub-columnar basalt. Presently, after treading the pebbly bank and stony tracts, well garnished with mud, we reach the mouth of the little stream, or rather the place where it should mouth. Here, as on many parts of the coast, where not protected by islands to windward, or where the rock does not come down to the water's edge, a high bank of

¹ Varða, in the plural Vörður, is a beacon, more generally an "homme de pierre," a pile of stones to act as landmark or way sign; it is derived from að varða, to ward, to guard, monere (quod hic vicus est). Our travellers generally write the word in the Danish form "Varde." These piles, like the "'a'úr" (Kakúr) of Syria and Palestine, are often put up by the shepherd lads, apparently for want of something else to do.

sand and shingle is thrown up, and retains the water in pools of various extent. Mostly, these basins are briny, being affected by the percolating tide which ebbs and flows regularly inside: they explain the presence of the upper bog; the matted roots of the vegetation prevent free drainage; and the want of slope would probably render even deep-ditching ineffectual.

We cross the streamlet higher up, and ascend the right bank, where walking is better than on the left, wondering the while that during so many centuries of use the feet of the washer-women have not worn a way. Here at length is some sign of life. "The lady-hen sings to the riv," as the Shetlanders say of the lark, but her carol is at the gate of a milk-and-water heaven. The curlew and the whimbrel scream their wild lay in the lower air; the snipe rises with a peculiar twitter; the snippet bathes where the water is warm; the water-rail (*rallus*) courses before us; the true sandpiper (*tringa*), accompanied by a purple congener (*T. maritima*), with brown back, white waistcoat, black colours extending over the eyes and crest, with long red beak and legs, forages busily for food; whilst waterfowl, including the ubiquitous eiders, male and female, float lazily off shore. In many places the sandpiper behaves like the Brazilian João de Barros, alighting before the traveller, and apparently enjoying the fun of narrow escapes.

A number of ponies, awaiting transportation to the mines of Great Britain, were grazing about, and bolted as we drew near. The few cows, almost all hornless, had small straight bodies, and large udders, which are said sometimes to give from ten to twelve quarts of milk per diem, and 3000 per annum; the proportion of butter being 1:16. Wretched bullocks, not weighing more than a Syrian donkey, were fattened for foreign markets: surely the roast beef of Old England never appeared in meaner form. Presently they will be lashed to ponies' tails, and afford much amusement to the gamins of Reykjavik by springing over the little drains with such action as the Toro at Ronda attempts the barricades. The ewes, dull-yellow, straight-eared, and thin-tailed, some with coats, others sheared, or rather plucked, in Shetland parlance "roo'd," were at a distance to be mistaken for goats; in June most of them are accompanied by lambs, singlets

or twins, looking extra innocent. They yield a couple of quarts of milk per diem, or about fifty per annum, and their fat is said to contain an unusual proportion of stearine. Merinos have been tried, and to them many people attribute the dreadful scabies which has raged since 1855. The goat, once so common, is extinct in this part of the island, at least I never saw a specimen in Iceland: this destructive animal could not have been much at home where there is so little wooded land; and it was proscribed for climbing upon the turf roofs, and doing other damage. The happy mean has been hit by Istria, which issued laws in early ages *de capris non tenendis*, and which now allows goats only in the wildest and stoniest parts. It will be a fortunate day for the Libanus and Syria generally when the graveolent there falls into like disfavour.

The comparatively fertile banks, clothed with the *Lecidea Lindleyana* grass, shows us, for the first time, the pretty Icelandic flora in full bloom; and the general effect is yellow, as that of Palestine is red: this arises from the large proportion of buttercups (Icel. Sóley) and dandelions. The properties of *Leontodon taraxicum* in hepatic disease, either as coffee or as salad, are here quite unknown; the Icelanders call it Unda-fill, and the Færoese Heeasolia. Its flowers are used in the southern islands for yellow dye, and the leaves are eaten in spring: after that time they become bitter. There is an abundance of golden liverwort (*Parnassea palustris*) and cross-worts (*galiums*) of many kinds, locally called Maðra and Krossmaðra; of Alpine saxifrages (*S. hircula* and *oppositifolia*), of azaleas (*A. procumbens*), pretty red flowers, loved by sheep; of lilac-tinted butter-worts; and of the yellow ranunculus, common in the Pyrenees and Alps. The wild thyme (*T. serpyllum*), which preserves a strong perfume, whilst the four violets have lost it, is termed Blóðlýng by the people, and, mixed with other leaves, is extensively used in ptisanes to "thin the blood." An orchis, an equisetum with small stiff leaves, and a "fox grass," as the fern is locally named, faintly remind us of the tropics—ferns always have this effect. Very familiar to the eye are the daisy (in the Færoes, Summudaar), the white chickweeds (*Stellarium* and *Cerastium vulgatum*, locally called "Musar-eyra,"

(mouse's ear); the forget-me-not (*Kattar-auga*), which flourishes everywhere; the white cardamine (*C. pratensis*); the common bitter cress, which Icelanders call Hrafna- (pron. *Hrabna*) klukka, or raven's bell; the other pretty little crucifers, and the rhododendron (*laponicum*, Icel. Kalmanstúnga), with a delicate red flower. The Iceland heath (*Erica vulgaris*) here becomes a valuable plant: the people say that sheep cannot die where it abounds, and they use it with peat and brushwood to smoke their meat. The geranium (*G. silvaticum*) is common, especially the malva, known as Ljons-kló or -löpp (lion's paw), a name evidently given by those who had never been presented to King Leo. The Fifa, or cotton-grass (*Epilobium* or *Eriophorum polystachion*), with bright white pods, which extends from Iceland to South Germany, and which fattens sheep in Dumfriesshire, will haunt us in every swamp: it is a much maligned growth, and it serves to make the bog far more solid and less like a rolling carpet than the "Serbonian" feature otherwise would be. The less familiar plants are the crowberry (*Empetrum nigrum*), eaten by Corvus in Scotland before the grain is ripe; the red cowberry (*Vaccinium vitis-idaea*), which mostly affects the hills, and is preserved for pancakes; the grass of Parnassus (Icel. Mýra-sól-ey); and a moonwort, rare in the British Islands.

The deep, narrow ditch winds through the plain, with bulges here and there, which make good bathing-places: what little steam there is, generally courses before the wind down the valley. The old centre of ebullition is denoted by a small green mamelon or tumulus on the right bank, supposed to be the site of a large spring once boiling: hereabouts poor, brown, and fibrous peat is stacked, and on week-days it is the meeting-place of a dozen Baðkonur (washerwomen),¹ of all ages, from grandmother to small girl. A baylet in the right bank shows the present focus of ebullition, though a little below, on the left side, the

¹ Kona, of old Kwina and Kuna, is evidently the English Quean (but not Queen). It is a congener of γυνή (Sansk. Jani), which the Rev. Wm. Ridley (p. 390, *Anthrop. Journal*, July and Oct. 1872) traces through Guni, Gun, Gyn, and Gin, to the Australian "Jin:" why not take it at once from the Arab. Jinn (Genie), a manner of devil? For many years, Konungr (A.S., Cynig, our King) was composed of Konr, man of gentle birth, and Ungr, young; but the Dictionary pronounces this to be a mere poetical fancy.

water above a dwarf rapid is scalding hot: at the former, the thermometer (F.) readily rises to 175°, and soon cools down stream. Higher up again the little ditch, coloured with bog iron, and with strongly chalybeate taste, is icy cold: as at the celebrated Snorri's Bath, all degrees of temperature can here be combined, and whilst one hand is parboiled, the other is chilled.

The water after traversing heated substances, evidently pyritic, effervesces from a bottom of dark-grey mud; and when the stone is exposed, we find heat-altered basalt covered with a whitish incrustation, silica, the chief ingredient, being deposited in a gelatinous state. There is a strong smell of sulphuretted hydrogen, so commonly remarked in dormant springs, and the offensive presence should recommend it to skin diseases, especially where the *Sarcoptes scabiei* is present. From the muds and deposits of these waters none of the rarer earths, like yttria, glucina, and oxide of cerium, have been found, though traces of cobalt occur: lime and magnesia abound; manganese, iron and silica, soda and sulphuric acid, also exist in considerable proportions. Dr Murray Thomson has carefully analysed the produce of the Laug.¹ Eels are mentioned by travellers, but we never saw them: in the lower course there are shell-less snails and a variety of worms (pupæ?).

Broken bottles and fragments of the "Constitutionnel" show the favourite place for bathing: formerly here, as at Thingvellir, a wooden shed was set up; now every inch of it has disappeared. It is no joke to dress and undress in the raw high east winds and the bursts of storm, but the exceptionally healthy nature of the climate asserts itself under these unpleasant circumstances. As there are traditions of a French sailor having

¹ The pint was found to contain 3·51 grains of solid matter. The specific gravity (at 60° F.) was 1000·21, and the components were:

Silica,	1·04 grains.
Protoxide of iron,	0·24 "
Lime,	a trace. "
Magnesia,	0·2 "
Soda,	0·84 "
Sulphuric acid,	0·76 "
Chlorine,	0·40 "
Organic matter,	0·30 "

Total, 3·60 grains.

died of pleurisy after a bath, common prudence would suggest a sunny afternoon. The amount of refreshment derived from the "Hammám" is immense. Strangers in Iceland often attribute to other and less cleanly causes the sudden eruption of Lichen (misnamed *Tropicus*) or prickly heat, the nettle rash which the Danes call "Red Hound:" it seems to be as common about the poles as throughout the tropics, and many of my English acquaintances suffered severely from it in Iceland without recognising it.

From the bath we walked over the stony bog to the nearest Bær, which is generally deserted: it is occupied by the caretakers of the Laugarnes Hospital. The two-storied whitewashed house is built of irregular and unsquared basaltic blocks: the frontage is south of west. Each of the two floors has three windows, and the wings two on the east and west, but none to the north. Formerly the episcopal palace, it was last occupied by Bishop Steingrímur Jonsen: the present dignitary has always preferred the town. It has now been converted into a smallpox hospital: two patients died there this year (1872); since then, as no cases have come in, the doors are locked, and the attendants are engaging themselves elsewhere. In olden times it was connected with the town by a *chausée*, a causeway somewhat like the remains of the Saracen, miscalled Roman, roads which cross the flat country south of Damascus. Bad as it is, the fragment teaches a useful lesson—never, if possible, to quit an Iceland road. "Follow the highway tho' it winds," say the Tartars.

A Scotch gentleman, well-known in Iceland as a firm and hospitable friend to Icelanders, proposed to buy Laugarnes for a summer residence, to pay \$3000, and, moreover, to conduct the water in tubes to Reykjavik, where it might lead to a habit of Russian baths. Unhappily, it belongs to a company, or rather to half-a-dozen proprietors, who have added Klepp, the adjoining property: they showed their unwisdom by asking \$4000 for the original estate, and now their terms fluctuate, according to chances, between \$8000 and \$14,000.

From the Hospital we follow the shore to the Laxá River East. On the way there is a deposit of very light blue-grey hydrate of iron, cellular and globular, and rich in water, and phosphorus:

it is supposed to result from the decomposition of titaniferous iron, contained in the underlying dolerite. Close to the sea, and conspicuous to those who sail by, is a classical spot, the Haugr, howe or cairn of Hallgerða, the fair-haired with the thief's eyes. That lady, so famous in Iceland legends, virtually murdered three husbands; the last was the "peerless Gunnar," who, some years before, had slapped her face. She lived upon this farm, which she inherited from Glum, her second victim; she died in A.D. 996, and she was buried with all the honours of her rank. The tumulus always remains green, doubtless a token of Heaven's approval bestowed upon one of the strongest-minded of her sex. Should Mary Stuart succeed in being sanctified, the abominable Hallgerða surely has a chance: at present she is known to local fame chiefly from the beauty of her locks, which hung down to her waist. She is one of those women in history whom one would like to interview.

Another tract of stone and bog led us to the Laxá River, which discharges into the usual broad Fjörð, fronting Viðey, and bounded on the east by the low, chapelled point of Gufunes (screw naze). The name, often written Danicè Lax¹ (salmon) Elbe or Elve (river), is common in the island, which may contain a dozen Laxás: there are four near Reykjavik, each distinguished by some local affix. Henderson erroneously calls it Hellirá, river of caverns, from the many holes in its lava bed; others prefer Hellurá, river of slabs: so Newfoundland was first called Hellu-land. The classical term, however, is Elliðaá, from the ship "Elliði," which Ketilbjörn Gamli (the old) caused to be dragged through river and lake. It rises in the Elliða-vatn (Ellwich-water), a circular lake with tuff walls, showing an extinct volcano: this place, about one hour's ride south-east of Reykjavik, is a famed place for picnics, and is much affected by men who go a-fishing. The stream, or rather torrent, rushes fiercely between tall and rocky banks, flares out at the mouth, and finds rest in the broad bosom of Reykjavik Bay.

¹ We have Lax rivers in England. Some books translate Lax "trout" as well as salmon. This is a mistake, the former is always known as *Silungr* or *Forelle* (Dan.): as may be expected, there are numerous terms for the fish at different ages and in several conditions.

Presently we reached the salmon ground, which is now but a shadow of its former self, doubtless the result of "barring" with weirs, traps, dams, and nets. Until the beginning of this century it was held by the Crown, and tradition declares that sometimes 3000 head, with a maximum weight of 40 lbs., were taken in a single afternoon. It was first rented to Hr Scheele, a Danish merchant at Reykjavik, and was afterwards sold in perpetuity to the father of the present Hr Th. A. Thomsen. The sum mentioned is \$1200, a poor bargain for the local Government, as the yearly revenue is said to be \$1000. The owner has placed six common box weirs, with crates, allowing the fish to work up stream, but not to return; and stone dams, which are removed before the ice sweeps them away in autumn—salmon and trout here spawn in October. They might be placed a little higher up for the convenience of the fish, but at any rate they are better than the standing nets, with which a Scotch contractor "barred" the very mouth of the river.

I saw the boxes opened about mid-July; but rain had been scarce, and the whole take was 15 salmon, the maximum being 5 lbs., and the average under 4 lbs.: we heard, however, that some weeks before, one box had yielded 63, and the six a total of 179. They are readily sold in the town for 22 skillings per lb., and in the country the price falls to 12 or 13. By an arrangement with Hr Thomsen, the traveller might be allowed to fish for salmon and trout in the lower stream, and in the upper waters he can so do gratis. At the same time he must keep well out of the owner's limits, or there will be work for the lawyers.

CHAPTER IX.

FURTHER AFIELD—ASCENT OF THE ESJA AND THE SKARÐSHEIÐI—
THE HOF OR HEATHEN TEMPLE OF KJALLARNES.

RIGHT opposite Reykjavik rises an interesting block of mountains. Bearing due north is Akrafjall, bluff to the sea and sloping with a long dorsum inland; it is the western steeple of the long Hvalfjörð, one of the many digitations, carved by wind and water in the western coast. The eastern is the Esja, which means a "kind of clay;" some travellers miscall it the Esian or Essian, with the definite pronoun suffixed,¹ and sounding much like "the Alcoran" to an Arabist. The southern flank of this precipitous buttress, gashed with deep ravines and still spotted and streaked with snow which will not disappear before mid-August, lies north-east and across the baylet of Reykjavik: in fine weather it looks as though you could see a man upon the summit. Between the two pilasters of the inverted arch, forming the apparent bound of the far vista, is a third, a smaller and a more precipitous block, Skarðsheiði—heath of the *col*²—with five buttresses, waxing whiter and whiter as they leave the warm western aspect. The view is fine albeit somewhat sinister, and you miss it like removing from the Chiaja to the interior of Naples. All this, we must remember, is only a corner of the great south-western Fjörð, whose northern

¹ This suffixed article, which has died out of so many northern tongues, appears to be comparatively modern, only once showing in the Voluspa (*e.g.*, Goðin, v. 117). It is found in Coptic, *e.g.*, Mau-t, the mother, for Ti-mau; and in Wallach (Daco-Roman): the latter, for instance, says Frate-le (in Italian, Il fratello), and Dinte-le for Il Dente (dens).

² Skarð, common in local names, is the English Shard, a notch, chink, an open place in a bank, a mountain-pass, the Cumbrian Scarf-gap (Cleasby). Henderson gives Kampe as the popular name of a *col*; he probably means Kambi, a comb or ridge.

limit is the Snæfellsjökull and whose southern is the Skagi (point) of Suðrnes: it is called Faxafjörð, from Fax,¹ the Scot, who believed it to be the estuary of a mighty stream; the same kind of mistake gave a name to glorious Rio de Janeiro.

The eastern or inland view from Reykjavik on a fine day is not less picturesque. The clear cut basaltic line of mountains, here and there broken and jagged, stretches from north-east to south-west. In the former direction it appears a mural range, in the latter the blue wall breaks up into detached features, the regular cone of Helgafell, or holy hill, the pyramid of Keilir, "the wedge," so well known to sailors, and the four hillocks called the Trölladyngjur,² or giantesses' bower. Again this feature reminds me of the Jebel Haurán, and we shall find it beautifully displayed from the several mountain-tops.

On June 12 I set out with Major B. and Mr S. to try our prentice-hand upon the Esja. The vehicle was a two-oared boat redolent as usual of fat, fin, and feather; the hour was 6.45 A.M., and the north-easter was biting cold—at this season travellers should prefer post-meridional excursions, as the afternoon wind, during fine weather, invariably shifts to the genial west. The terns and the large Iceland gulls were hurrying home to the several islands, each showing the economical value of early birding.

After adding prospects of Geldinga Ness, Therney, and Lundey to our repertory, and covering in two hours the six miles' sail, we landed at the usual place on the northern bank of the dwarf Kolla Firth. It showed farm-houses scattered around and a few fishing craft carefully drawn up; a very necessary precaution when the tide is going out. On the left was Esjuberg, where Örlýgr Hreppson, converted by Patrick, Bishop of the Hebrides, built the first Christian chapel, and dedicated it to St Columbkille, Apostle and Thaumaturgus of the Picts. Farther off lay another farm upon the site of the celebrated pagan temple

¹ Meaning a mane, hair, and still preserved in such names as Fairfax.

² The word often occurs in Iceland; it is applied to a lady's bower or a dungeon, both being secluded chambers, to a heap of refuse (Cleasby), and to conspicuous warts and peaks of rock.

known as the Hof of Kjallarnes—we shall visit Keel-ness by and by.

It is perfectly true in Iceland that

“The sea is wet as wet can be,”

but we cannot say that

“The land is dry as dry.”

Throughout the lowlands Nature, organic as well as inorganic, seems never to be free from moisture: like tropical man it always sits in a damp skin.

Having hauled up our boat we crossed the moss towards the great gash in the hill-flank, the *Caldera*, so conspicuous from Reykjavik; as usual the ground was shaky bog, and in places like an exaggerated Turkey carpet. The cause is that the shore, formed either of shingle or of vegetation decayed to humus is, as we have seen, higher than the interior, and the people content themselves with dykes for roads, and with trenches never deep enough for thorough drainage. We passed two small farms composed of the normal dwelling - places, stables, byres, and outhouses; plans and elevations of these abodes have been given by every Icelandic traveller who has used pencil as well as pen. Suffice it to observe, that throughout Iceland the dwelling-place, like the “skip,” has seen better days, and that both are now hopelessly degenerate.

At the second farm lived the guide, who was absent in the fields, and we vainly attempted persuading the sailor lad, a regular “lazy,” to accompany us with the provaunt-basket. An English youth would have been delighted with the chance of a climb, but these *fainéants* about the capital, timid and apathetic, will do nothing for sport or adventure, and move only when need drives.

After forty-five minutes' walk we entered the great gorge, which discharges a shallow stream, winding in many veins over its broad and rocky wady: it must be a furious torrent during the thaws of spring. We should have crossed it and ascended a sharp, rocky, zigzag on the right-hand jaw, but we had no reason to regret the error, as the deep section gave us an excel-

lent view of the Esja's internals. The formation of the mountain is still a disputed point; some hold its base to be basaltic pierced by more modern trachyte, whilst others believe in the greater antiquity of the trachyte. As will be seen, when travelling to Mosfell, or south-east, we found trachyte on a level with the Esja's foundation and, when coasting along the western flank, we saw Palagonite sandstone, dyked with trap, and underlying as well as overlying the later igneous formation. The sequence, therefore, appeared to be Palagonite, trachyte, and trap. On the Kollafjörð also there is a line of carbonate of lime running from north-east to south-west, and strongly affecting the water: hence it is judged that Iceland spar may be found there.

After a few minutes we came to a place where the gorge was split by a tall chine of rock, and where overfalls and deep inclines rendered the two beds impassable. We climbed up this hogsback, remarking, as others have done before and since, how dangerously brittle is the rubbishy stone which comes away in large fragments under the foot. The same observation constantly occurs in travels through Greenland and Spitzbergen, and the cause is doubtless that which strews the upper heights of the Libanus and Anti-Libanus with natural Macadam—fracture by alternate expansion and contraction. In Iceland, moreover, the *débris* lies in dry heaps, loosely attached to the surface and not based upon or secured by vegetation or tenacious humus, while the sharp angles of the material produces many a rocking-stone. Hence large masses giving way readily beneath the tread, somewhat surprise the inexperienced. We then fell into a long stiff slope of rock and yellow humus, puffed up under the sun; there was an abundance of water stagnating even on the sharpest declivities, and doubtless percolating from the snow strips above. Where the surface was tolerably level, rough grasses upon which a few sheep were grazing were sprinkled with mosses and with raised patches of bright green studded with pink flowerets (*Dianthus*), faintly resembling the huge Tabbán pin-cushions of the Hermon. Animal life appeared to be exceedingly scarce.

Presently the guide, who had followed us, was seen crossing the left-hand or western ravine, and only his Iceland shoes

enabled him to do so. Of course, he wore gloves, for what reason we could not divine, except to keep his unwashed hands white; and his alpenstock was an iron stick, some three feet long, with a ring at one end and a half barb at the other. He waddled like an ant-eater when showing his vigour by spurts of running up and down, and his bent and *affaissé* form was a considerable contrast to that of the mountaineer generally. He was like his brethren, the very rudiment of a guide, utterly disregarding of the guided; and in case of difficulty or accident, we expected him at once to skedaddle. When he whooped "ho!" it was the screech of a sea-fowl.

Arriving at the stiffer part of the ascent, about 2400 feet above sea-level, we should have bent to the west towards the largest patch of snow, where the angle is exceptionally easy. But our guide followed us with African docility, as we bent eastward under the tall scarps of submarine trap, which from Reykjavik appear to stand up like a wall. There were several *couloirs* to cross, mostly slides of icy snow: in August they will appear like broad yellow gutters polished by frost. Here we picked up specimens of red jasper, crystals of lime, and stones whose drusic cavities were charged with *calcaire*.

Then began the climb up the crest. The stairs, about eight or ten feet high, run with tolerable regularity, whilst breaks here and there allow easy ascent: at the base is kittle *débris*, where falling blocks may be expected. However hopeless may appear these trap walls, whose copings, straight and regular as if built by man, form the characteristic feature of maritime Iceland, they are generally climbable by creeping along the ledges below the several grades till gaps offer an opportunity of swarming up to the higher tier. If, however, a profile view shows that these traps dip instead of tilting seawards, the normal disposition, attempts will be in vain. Cryptogams were thinly scattered over the blocks; lichens appeared to be rare, and the mosses had not revived from the winter burning—as regards musserlogia there is still much to be done in Iceland.

After a walk of three hours, we stood upon the level summit,¹

¹ At sea-level the compensated aneroid (Casella, 1182) showed 30·05, the thermometer (F.) 66°. Here it was 27·10 in the open air, with the thermometer at 40° (F.),

about 3000 feet above sea-level, and the ascent was according to the rule of the Alpine Club, a thousand feet per hour. Here rose a number of Varðas or old men. We crossed a dazzling *névé*, following the guide, who probed as he went on, for here as elsewhere,

“The snow o'erlays
The hidden pits and dangerous hollow ways.”

I narrowly observed its behaviour. The ground about it was so soft and slushy that even stones would not support our weight, and the shallow edges were icy-hard, the effect of increased evaporation. On sloping surfaces the same effect is caused by pressure, like squeezing a snow-ball, and gelification is prevented by the little runnels which the sun sets free to trickle down the gorges. The material was glaucous rather than flaky or niveous, and promised firm foothold. We have read of travellers sinking to the shoulders, especially in the snow of August, but it is doubtful if this ever takes place above a certain altitude, especially in dry weather, when Iceland snow wastes away in the wind like camphor.

The “raking view” from the summit was a fair physiognomical study of treeless Thule. To the north the mountain is a mere section, a shell with perpendicular falls and steep steps of loose stone, which demand rope ladders. Before it the lowlands fall to the Hvalfjörð, beyond which the Akrafjall dorsum slopes inland, or to north-east, till suddenly arrested on the other side of the smooth green sea-arm by the five buttresses of the sister formation, Skarðsheiði. The latter looks as though a few hours, instead of two days, would reach it; and our friends at Reykjavik showed their belief in the wondrous transparency of the atmosphere by trying to detect, with their opera glasses, our small bodies creeping up the slope at the distance of at least six direct geographical miles. At Quito, under the equator, a horseman's white poncho may, according to Humboldt, “be distinguished with the naked eye at a horizontal distance of 89,664 feet, and therefore under an angle of thirteen seconds.”

Turning southwards, we found the Esja summit flanked to the

and in the pocket 26°90, with the thermometer at 80° (F.). The instrument, despite compensation, must always be cooled in the shade before use.

east by three regular buttresses, like artificial earthworks, with stepped projections and horizontal lines of the whitest *névé*. Farther down were *couloirs* filled with a brown snow, in lines too steep for crossing. The highland before us reminded me of the Paramos or deserts of the Cordillera, and the view generally was a wondrous contrast with European ideas of spring beauty. The lowlands at our feet were sprinkled with lakelets and tarns, the Vaud and Soe of Norway, the largest being the Hafravatn and the Elliðavatn. The formation of the Fjörðs lay in panorama, a network of fibres and threads converging to form a main embouchure; whilst the several bays had those hooks and "sickles" of sand, which the "Rob Roy" canoe places in the Sea of Galilee, but which my lamented friend Tyrwhitt-Drake and I were not lucky enough to find. We have already remarked this wealth of "oyce" in the Scotch firths, and Elius Corvinus declares the same to be the case in Dalmatian streams:

"Danubio et Nilo non vilior Ombla fuisset
Si modo progressus possit hebere suos."

From south-east to south the prospect is bounded by the snow-dotted Hraun or lava-run, which in places appears as two parallel ranges. It completely hides the Thingvellir Lake, but in far distance, peeping over the summit to the east, rises the bold and rocky head of the arch-humbug Hekla. The range terminates to the south-west in Laugarfell, a buttressed crest like the Esja, beyond which the Vestmannaeyjar archipelago floats in little lumps below the cup-shaped horizon. The eye rests with pleasure upon the Helgafell cone and the pyramid of Keilir, perfect as the pigmies of Egypt: this shape is common in Iceland, and forms the best of land and surveying marks. Beyond the long, thin point of Reykjavik (Seltjarnarnes) and its scatter of volcanic islets, the dwarfed projections of Skagi and Reykjanes fine away into mere streaks of black upon the pale blue sea. Presently a cloud came over the sun, and the cold air warned us to keep moving. Ugh! how raw it was; the wind seemed to pierce every joint in our harness. We descended by the picknicker's path, showing the unnecessary trouble we had

taken: the line ran between the great gorges or rather rents in the flanks, which gave excellent sections of the interior, stratified beds of newer red and older grey-blue lavas remarkably distinct. At the foot of the mountain the thermometer, placed in reflected heat upon the snowy ground, showed 82° (F.), hardly to be expected in Iceland.

Reaching the guide's house, we were kindly received by his wife, who gave us coffee, biscuits, and excellent milk, which mixed with Korn-schnapps, even the "water-bewitched" of Reykjavik, is a most satisfactory beverage. We dropped a rixdollar, by way of being "delicate," into a child's hand. Two months afterwards, our cicerone wrote to Geir Zoega that he had guided (unbidden be it said) three Englishmen up the mountain, and had given them coffee, etc.; that his fee was \$3, whereas they had left only \$1 with a servant girl, from whom he could not take it. This little trait—one of many—would not be worth quoting did it not show that the unsophisticated age of the island has, in these parts at least, passed clean away.

It speaks volumes for the excellence of the climate that next morning no one, even after ten months of London life, complained of stiff muscles. We had been baked, chilled, and baked again, yet there was not a trace of "cold catching:" the latter, to resident foreigners, is not unfrequently the result of the glacier winds, but they never seem to adopt such simple precautions as a hareskin or a *Manus Dei* (poor man's plaster).

A most interesting part of the Esja mountain is the north-eastern section, where two regularly-shaped cones of golden colour, sharp towering in the milky blue air, attract the eye from Reykjavik. They are conspicuous in snowy caps, which they long retain, whilst the basalts and the dark Palagonites assist the thaws. I was anxious also to inspect the head of the celebrated Hvalfjörð, to ascend Skarðsheiði, and to call upon the Reverend Thorvaldr Bjarnason, who had hospitably invited me to Reynivellir, his parsonage. The excursion took place about mid-July, but I again sacrifice the unity of time to that of place. My companion was Mr Martin Chapman, of New Zealand, now domiciled in the Temple: we had already made the trip to Hekla, and his good gifts as a traveller, his energy and his im-

perturbable good temper and *sang froid*, made him an excellent companion. We again secured as guide Páll Eyúlfsson, of whom more presently. Each had a remount, and a single baggage animal was judged sufficient.

We set out merrily by the eastern road, through a country now familiar to the reader, and soon covered the four miles between the town and the ford of the Laxá (Elliðaa). On the way were many signs of glacial action, grooving as well as slickensides, caused by the friction of two rock surfaces: the ice-dressings which I had last seen on Arthur's Seat are everywhere around Reykjavik. At Hr Thomsen's farm, Ártún (river "toon"), we left the inland or Geysir road and turned towards the sea. About Leiruvogr (mud bay) and the mouth of the Leiruvogsá the floor was of trachyte, which appeared even in the streambeds: the material was heat-altered and discoloured by oxides. The little black church of Mossfell (moss-hill), a common name in the island, was the half-way house; and thence we rode up the Svinadalr (swine-vale), to the white pass of Mó-skarða hnjúkr, also called Há-hnjúkr. Here, after travelling three hours and forty-five minutes, we dismounted and prepared for the ascent.

On our left hand was a rough tooth, or *aiguille*, a conspicuous object rising perpendicularly from the rapid slope: the lower ground was the usual mixture of bog, moss, and water. This was soon exchanged for an angle too steep for vegetation; yet even on the summit, we picked scattered flowers, and the peculiarity of Iceland in the eyes of an African traveller again repeated itself. Here we find not only genera abnormally numerous compared with species, but also no change of growth from the tropical to the temperate and the polar, as, for instance, on Camarones Mountain. The same flora everywhere appears, the paucity of vegetable corresponding with the poverty of animal forms: only in the upper regions it is of course dwarfed by height and by the comparative thinness of the aqueous vapours which screen the lowlands; and for the same reason it grows and dies later in the year.

The surface of the mountain was purely trachytic, but the one material was Protean in shape and colour. The prevailing tints were red and golden yellow. We recognised the slate of Hekla

and the heat-altered material near the great Geysir. As we neared the summit the metal became flaky, like the limestone of the Syrian mountains. After forty minutes of rough climbing over slopes of rubbish—the smaller it was the firmer it proved to the tread—we reached the apex, about 2000 feet above sea-level: like the western Esja, it had the sharpest face to the north, and the crest was a saw, a spiked *arête*, palisaded and bristling with teeth and jags like the many-bladed knife of the cutler's shop.¹

Returning to our horses, we descended one of those staircases of earth and stone now so familiar, and fell into the valley of a northern Laxá, called for distinction, "of Reynivellir" (the sorb-apple plains). The surface, so fair to sight, is swampy, despite its main-drain, and must be traversed by earthen dykes. The lower part is protected to the north by the Reynivallaháls (neck of Reynivellir), and to the south by the Miðfell (mid-mount) and other outliers of the Esja. Here many houses are scattered about; we recognise the sweet scent of hay; and the dock-fringed plots of potatoes and cabbages look exceptionally flourishing. In winter all freezes, but as the grass never protrudes from the ice, however shallow, the neighbouring farmers visit one another on skates, which are those of Europe generally.

At eleven P.M. we reached the parsonage, which showed three gables pointing southwards, and a fourth to the east. A cart and a wheel-jack gave signs that improvements were not unknown. The hour was unusual for calling, but Iceland knows nothing of these fine distinctions: the house dogs bayed the alarm; the host awoke the household; and, before turning in, we supped comfortably at the parsonage.

On the next day Síra Thorvaldr could not accompany us, having service to read. The only son of a widow, he entered

¹ "The whole formation of the mountain (Büdös) and the surrounding cones, the sharp-edged blocks and masses of rock, heaped up one on the other, of which these consist, the apparently molten surface of the trachyte—all seems plainly to prove that it was only after the formation of these masses, and when they were in a rigid state, that a grand upheaval took place here; during which, the powerful gases from below, raising, and straining, and tearing the masses, piled them up in mighty domes and mountain-tops, tossing them about till, here and there, they had found permanent canals leading to the surface of the earth" (Frederic Fronius, quoted by Mr Bonar).

the Church at her desire, but his heart is book-hunting at Copenhagen, and, as his Sanskrit volumes show, his delight would be Orientalism. But what can be done so far from the haunts of learning? and at thirty-four he sees life gradually slipping away from him. Meanwhile he takes pupils, he farms, he flirts with botany, and he refreshes himself by an occasional visit to Reykjavik. He kindly gave me a copy of the Reykholtskirkjumáldagi, the Authentic Inventory of Reykholt Kirk, facsimile'd by the Icelandic Literary Society:¹ the three specimens bear no date, but the Sagas fix the time between A.D. 1143 and A.D. 1222.

About ten A.M. we were *en route* and, worried by swarms of flies, in forty minutes we walked up the great ugly prism, Reynivallaháls, whose winding way was hardly visible from below. The summit is dotted with Vörður, to guide travellers and church-goers through the snow. The descent turned eastward, and showed us in front the familiar forms of the horned and snow-streaked "Súlur," the massive umbo of Skjaldbreið, and the white dome of the Ok Jökull: to the left (north) was Skarðsheiði, veiled in clouds. The lower gullies, where the heavy cold air settles, condense their columns of warmer air into clouds, which simulate water-spouts: at times these vapours, wonderfully resembling smoke-pillars, have been mistaken for a rain of erupted ashes. At our feet lay the head of the Hvalfjörð, looking unusually picturesque in the still, blue air. Great double buttresses pushed peremptorily from behind. The Múlafjall (mull-hills)² and Síldarmannafjall (sillock-fisher or herring-catcher's hill) are separated from Reynivallaháls and from each other by Botnsdalr (bottom-head dale), and by two green vales, Brynjudalr, where the brindled cow was once lost. The river-like surface of the firth was exceptionally tranquil, and a dwarf islet, shaped like a Strasburg

¹ It is noticed in the "Mémoires de la S. R. des Antiquaires du Nord" (p. 9, vol. of 1845-49). The writer assigns it to A.D. 1143, in the days of "Are Frode" (Ari hinn Fróði).

² Múli (pron. *mule*) is the Germ. Maul, a muzzle, and the Scotch Mull (*e.g.*, of Galloway), the Shetland and Orkney "Mule." It means a buttress, with bluff head, a tongue of high land, bounded on three sides by slopes or precipices, and the word should be adopted into general geography. The Arabs would call this favourite site for old towns, "Zahr et Taur"—the bull's back.

pie, rose from its own reflection. There were other islets, and boats, and eider-ducks temporarily separated *a mensâ et thoro*, screaming "crees," peewits, plovers, and the usual accidents of a firth-view in Iceland.

At the foot of the descent we struck the Fossá farm, and rode along the northern counterslope of the Reynivallaháls. The path ran over swamp and rock; it was the *malus passus* of the whole line, but by no means dangerous as described by Geir Zoega. Fortunately the tide was out, and we easily forded the mouths of the Brynjudalr and Botnsdalr; on our return we exchanged the bad line for two long detours rounding the forked head of the firth. We then ascended to a farm situated under the Thyryll, or egg-kipper, the stick for whipping eggs, milk, or porridge. This remarkable feature forms the westernmost head of the Síldarmannafjall, and resembles nothing so much as two towers flanking the gateway of a giant's castle, built after the fashion of Normandy; the superstructure is basalt, and time seems to have tilted it a little awry, as if the proprietor had long been an absentee. This Thyryll takes its name from the mountain gusts which hurl men from their horses, threaten caravans with destruction by frightful whirlwinds, and raise sheets of sea-water high in the air, tearing them to pieces like snow. To look at the peaceful innocent scene we could hardly imagine that it ever lets angry passions rise, or that it had been led to the excesses and atrocities described by Ólafsson and Von Waltershausen.¹

The farm-people leaned against the walls, sunning themselves like Slavs under similar circumstances; there was no want of church-goers riding to and fro, and generally the travellers were more civil than upon the beaten paths. Iceland mostly reverses the rule of the world, the country folk being less amiable to the stranger than the town folk. From the Thyryll to the Ferstikla farm, a distance of an hour and a half, there are two paths. The

¹ The late Mr Piddington tells us that the Hvalfjörð district is "called by the neighbouring inhabitants *Veðra-Kista*, that is, box or chest of winds, which implies that this inlet is, as it were, the abode of violent storms." He gives cyclones to Iceland, where there are none, and he corrects Uno Von Troil (p. 41) who rightly makes the name "Storm-coast (*Veðra-kista*) to be given to some places in Iceland."

short cut lies along the shore of heavy dark sand and rocky points of black basalt studded with white shells; the porous material is in parts full of almonds of lime, hence the white coating which we here observe, as in the Wadys of the Haurán. The inner line is the usual mixture of warty surface, swamp, stone, and shaking bog. At Ferstikla, where a path strikes north for Reykholt, we found some grass and rested the ponies.

A couple of hours finished the ride. We turned left, over a shallow divide, the Ferstikluháls, whose northern counterslope is wooded with birches fully two feet tall, yet hardly equal to the task of pulling us from our saddles. We then fell into another Svínadalr (swine-dale), with three lakes disposed north-east to south-west, along the southern base of Skarðsheiði, and drained by another Laxá. There was no lack of farm-houses, a sight which cheered the nags whilst floundering through the deep mud-bog. A guide whom we had engaged *pro tem.*, pointed to the cone of the Blákoll, a comparatively low formation to the right; but the vaunted mountain with its stepped bluffs is everywhere easy, and "climbing for climb" always suggests to me the African's "drinkee for drunk." After a pleasant but very slow ride of seven hours, we made, at 7.30 P.M., the Skarð farmlet. After the muggy morning with a "rain-sun," followed by a chilly evening which threatened a down-pour, we were not sorry to be lodged in the cow-house of a "Sel"¹ and to sleep upon sweet-smelling hay, far preferable to the animal heat of the foul cubical.

This day we have passed over the Iceland terminus proposed by the Danish telegraph line. Despite the fearful whirlwinds, described as capable of breaking "tegulas imbricesque," and the rocky bottom of the Whale Firth, it is perhaps the best; it is absolutely free from icebergs (Fjall jakar), floes, and field-ice (Hellu-ís): Arctic ice appears in the Faxa Fjörð and about Rey-

¹ The Sel, which often occurs in Icelandic names, is the German Senn-hütte, a shed, or little farm-house, in a mountain-pasture. The A.S. Sele probably re-appears in our north-country "Shiel," a small shooting farm. In Norway such huts are called Setr, or Sætr, the A.S. Sætar: hence Sumur Sætas (dwellers in summer huts) became our Somerset. Iceland wants the cold arbour (Ceald hereberga = Kaltarn herberg of old Germany), the bare-walled lodge, or "Traveller's bungalow."

kjavik only about once a century, the last time being 1763. Here the bay-ice is reduced to a little brash-ice and shore-ice, which are of scanty importance. It is a lee-land defended by the south-western projection and by the north-western digitations from the berg-bearing currents; and the bottom, until the Hvalfjörð is reached, appears to be sand and mud. As Forbes remarks, there is no "eligible spot" for a station between Portland (Dyrhólaey) and Reykjanes; whilst the submarine volcanic line of rocks, the passage of steamers, and the shallows of Reykjavik, render that port impossible. The Vestmannaeyjar again are too far from the capital, and the east coast is simply not to be thought of.

The project is part of the "north-about line" of Atlantic telegraph, as opposed to the "south-about," viâ the Cap de Verds, St Paul's Rock, and Brazilian Cape St Roque. Many of us remember hearing it ably advocated some dozen years ago by Colonel T. P. Shaffner of Louisville,¹ Kentucky, who took it up in 1853; travelled to Labrador, Greenland, and Iceland; advertised, expended time and capital, canvassed, obtained concessions from Denmark, Sweden, and Norway, and published and lectured before the Royal Geographical Society, in order to raise a fund of £400,000. The time was propitious. The first attempt of 1857-58 had broken down after sending some 400 messages: in 1860 the longest sub-aqueous circuit was 750 miles. No. 2 cable (1863), carried by the "Great Eastern," had also failed; and Mr Faraday objected his "retardation" and "return currents," even to an air-line of a thousand miles. The bankruptcy of Transatlantic telegraphy was therefore confidently predicted; nor was it believed that any section of 2000 miles could possibly be made to last. Presently, by way of a practical jest upon scientific hobbies and croakings, the third cable (1866) succeeded: then came the Valentia-Newfoundland in the same year; and lastly, in 1868, the Brest and New York, or French line. Now (1872) a fourth is talked of, and the next half-a-dozen years may see another half-dozen.

Colonel Shaffner, who is well remembered in eastern Iceland,

¹ The North Atlantic Telegraph viâ the Færoe Islands, Iceland, and Greenland. London: Stanford, 1861.

proposed to cross the Atlantic by four stations, none exceeding 700 miles—namely, Scotland to Færoes (225-250), to Iceland (240), to Greenland (600-700), and to the coast of Labrador (510); a maximum total of 1700, afterwards reduced to 1645 miles. The project, however, contained two elements of unsuccess. Firstly, it proposed an air-line from Djúpivogur (east coast) to the capital: I do not know what my friend Dr Rae, who was sent to inspect the route, reported; but the universal opinion of Icelanders is that no telegraphic communication of the kind could resist a single winter-storm, not to speak of earthquakes and eruptions. “How repair the damage?” they ask: “how even carry the posts?” The second objection, the state of the ice about the Greenland coast, was perhaps even more fatal. Thus the scheme gradually fell into oblivion, not, however, before it had done right good service in exploring Newfoundland—a very paradise for anglers, where trout weigh 6 lbs. and where salmon sells at 4 cents. The persevering Danes still cleave to a connection with Iceland, and that is why we saw the gun-boat “Fylla” on her surveying cruise.

On the next morning, as the peasantry rose at three A.M. to ted their hay, we began preparations for ascending Skarðsheiði (scarf-gap-heat) by observing the aneroids.¹ Rain evidently threatened, as at A.M. 7.15 we attacked the slope of *débris*, green only where two trickling streamlets played hide-and-seek under moss and stones. After an hour's walk we reached the first ridge, and found in front of us a broken plateau about 2000 feet high, with five lakes and ponds distributed at different altitudes: the waters are all sweet, percolation taking the place of drainage. On our right rose a tall precipitous wall of receding steps, which at a distance resemble string courses and stories. The precipice is streaked with *couloirs*, very well disposed for falls and cannonades of rocks: high up there are two broad Palagonite bands in the trap, which may sometimes be seen from Reykjavik. Our guide the farmer did the honours of the echo.

¹ At the farm-house the mean of three observations taken before setting out, and after return, gave 29°60, th. (F.) 71°; summit of first ridge, 27°65, th. 87°; top of mountain, 26°60, th. 77°.

We now circled to the north, winding round the grim wall, up and down ridge after ridge of moraine-like *débris*, and over moss-clad boulders, among which we occasionally sank up to the knees. Here the most conspicuous growths were reindeer moss and Fjall-grös ("mountain grass"), the *Lichen Islandicus*, of which Felligrath sings:

" Old, even in boyhood, faint and ill,
And sleepless on my couch of woe
I sip this beverage, which I owe
To Guper's death and Hecla's hill."

In Iceland I never heard—as old travellers relate—of its being dried, put in bags, beaten, and worked into flour by stamping. Usually it is boiled, and eaten with barley like burghoo, or it is infused in milk, as cacao and maté sometimes are: it gives a light tinge of green, and a very pronounced mucilaginous flavour. The simple old days used it as coffee, but it could not stand its ground against the intruder which arrests the waste of tissue, as well as warms the blood. "Iceland grass," however, is still valued at home as a jelly for *poitrinaires*; and the last time I saw it was on the Campo-grosso or Dolomite mountains of Italian Recoaro (Vicenza).

After a second hour we reached the north of the bluff. On our left hand was a red and cindery mound, the Stellir,¹ justly famed as a landmark for sailors: ahead, and to east, rose the detached Skessuhorn, which seemed to present no difficulties: it was not till our return that we heard it described as a local Matterhorn, often attacked, but attacked in vain, and still awaiting its vanquisher. Turning to the right, we worked up the quoin by a passage between stone walls of Nature's make, and in another half-hour we climbed up the stiff slope of decayed trap. Our guide required some little management: he pointed in alarm to the mists rolling up from the north, with a cruel rush of cold air, and though the line was marked with stone-men, he ejaculated "Thoka!" (fog). "Lost in the mists" is often a conclusion to a "tale of Iceland's Isle."

¹ From að stilla, to fix a position.

The summit of Skarðsheiði, about 3000 feet above sea-level, resembled that of the Esja, and afforded a view quite as extensive, though not now so novel. To the north, under our feet, ran the winding Hvitá and its outlying waters, draining to the Borgarfjörð, here a grisly "spiegel," dotted with black reefs. North-eastwards lay the bare sulphurous grounds of Reykholt (reeky hill), while far to the north-west, bounding the north of the Faxa Fjörð, the knuckles of Snæfell and the caldrons popularly known as Katlar, the kettles, formed the land horizon. Southward the view ranged clean over Reykjavik, and showed the easiest route to Skarðsheiði: this would be by boat to Saurbær, north-east of Akrafjall, whence a walk of five miles places the traveller at the Skarð farm.

The ascent and descent had occupied four hours: we then mounted our horses, and returned before night to Reynivellir.

A delightful morning (July 23), when the air was so fine, so clear, so bright that

"It seemed a sin to breathe it,"

a morning when one really would have been sorry to die, sent us to bathe at the Reynivellir brook, regardless of slugs and snails, moths and flies. The Reverend left, after a copious breakfast of mashed salmon, with a promise to meet us on the road. He had just lost a parishioner. Since July 11th there has not been a shower, and the sky was that of Italy for a whole fortnight. This abnormally fine weather is equally fatal to the very young and the very old: seven or eight deaths had just taken place at Reykjavik, a large proportion out of an annual average of sixty; and three successive days saw three funerals: the causes are "pituita," malignant catarrh, and influenza.

We were threatened with a *mal pas*, and again found it remarkably good. From Reynivellir the path ran down the Laxá valley; and where we crossed the stream, it was clear as crystal, and abundant in trout. Here, again, turf has invaded lands once forested; and now we look in vain for a specimen of the sorb-tree, which named the parsonage. *Chemin faisant*, the Reverend lectured us upon the botany of his native vale. The Dutch or

white clover (Smári)¹ flourishes: that red-headed cannibal the Lambgras, moss-campion or dwarf catch-fly (*Silene acaulis*), which rises upwards of 11,000 feet on the Swiss Alps, here prefers the drier soils. The lower lands are covered with the Gúnga-gras ("bag grass," *Bursa pastoris*), everywhere common, with the meadow-sweet (Mjaðurt = οἰνομέλι, *Spiræa ulmeria*), which yields a yellow dye, and a grateful perfume in hot weather. The pride of the plain is the thrift or sea-gilly-flower (*Statice armeria*), with downy stalk and pale pink heads, which the people call Geldingahnappar, "gelding," that is to say, wether, "button." The richer and damper grounds are grown with the marsh marigold (*Caltha palustris*), the Solia or Solveia of the Færoes, here called Lækja-sóley or hóf-sóley, from its hoof-shaped leaf; cattle will not eat it, save as a *pis-aller*; the small green flower-buds when pickled resemble capers, and the inflorescence lasts from early May to the end of summer. It is a congener of the carnivorous *Caltha dionæafolia*. There is an abundance of the Engja-rós, eyre or meadow rose (*Epilobium augustifolium*), forming a pink carpet—there are many rosaceæ in Iceland, but roses are deficient, as in the southern hemisphere, only one having been found;² and the traveller must not expect to find the beautiful little "Ward" of the Libanus. Another common growth is the leguminous Um-feðmingsgras, "holding grass," the tufted or creeping vetch (*Vicia cracca*), whose cirri fasten upon neighbours; hence the Færoese call it Krogyogras, from Kroya, to cling. The solitary *Andromeda hypnoides*, a small creeper, with heather-like white flowers, acts lily of the valley. We are again reminded of Syria by the chamomile-like Baldursbrá (*Anthemis cotula*), whose snowy petals suggest the White God,³ Baldur the Beautiful, and whose circular yellow

¹ In the Shetlands called Smora, from Dan. Smör, butter, because it gives an abundance of cream.

² Hooker, ii. 325.

³ The Mexicans also had a "Fair God," Quetzal, beautiful as Baldur, and, better still, averse to human sacrifices. The popular tradition, that some day he would return from the east and rule the land, made Montezuma recognise him in the blond-haired Cortez: the great explorer and conqueror, however, did not prove a satisfactory Quetzal. Of these white gods and foreigners from the east, even in South America, I have treated fully in my notes to Hans Stade (Hakluyt Soc.), part ii., chap. xv.

centre assimilates it to the solar orb—it is too bad to call it “stinking camomile.” The common sorrel (*Rumex acetosa*, locally known as Valla, or Korn-súra) is a social plant that prefers the neighbourhood of farms, and flourishes in newly-manured túns: the other species are the kidney-shaped mountain sorrel (*Oxyria reniformis*) and the sheep’s sorrel (*R. acetosella*). In the more southern islands, where the root gives a red dye, the leaf is said to grow a foot and a half long; it is used to flavour bird soup, and is eaten with meat. An anti-scorbutic, pleasant withal, it should here be used every day, as tomatoes are in the southern United States; but if you advise the Icelfander to correct his blood with sorrel, he will probably reply that it is food for cows.

After an hour’s ride, including the inevitable short cut of wrong path and turning back, we reached the Miðfell farm, which faces cosily west, and is backed by its little range of trap so degraded that it seems to be forming humus. Fronting it is the Miðfellsvatn lakelet, which drains the north-eastern Esja: it swarms with the Sílungur trout, but there was no boat for the convenience of fishermen. Whilst the Reverend went to his funeral, we sat upon the grassy warts, and enjoyed the view of Snæfell, bluish-white in the flickering air. The thermometer stood at 86° (F.) in the sun; and the ghost of a mist tempered, like the glazing of a master-hand, the raw colours and rough forms of the scene. The prospect suggested Tempe, not the grisly defile of reality, but the picture painted by poets—Greek Greece and Syrian Syria contrast wonderfully with the features which naturally form themselves in the northern mind. We argued that a couple of pleasant summer months might be spent at Miðfell, but that such æstivation would involve building a fishing-box and stocking it with friends.

Not the least picturesque part of the prospect was the cavalcade of some thirty men and women returning in Indian file from the funeral. At last, wearied with waiting, we rode up the ugly rough ravine of Eilifsdalr, and turned to the right between the Esja and its northern outlier, Eyrarfjall. The latter showed sub-columnar and fan-shaped basalt in the foundations, with Palagonite, here yellow, there dark, overlying and underlying

trap, whilst striated rocks everywhere appeared. On the left hand, or under Esja, were mounds mightily resembling moraine:¹ they were probably formed by the streams of frozen mud which carried with them boulder fragments, and either strewed them upon the plain or swept them out to sea. The most conspicuous of the natural tumuli, and crowned with a stone, is called, 'Róstuhóll,² "battle holt," or, as Hooker has it, "duel hill:" here Búi Andriðsson, for whom see the Kjalnesinga Saga, kept his foes at bay, and slew half-a-dozen with a sling.

We then forded the streams, and crossed the nasty swamps and the stony patches of the brook which flows to the Hvalfjörð. Farms were scattered everywhere about the sheltered valley. After two hours and a half of slow progress, we were joined by the Reverend, who, gallantly mounted, rode straight as a fox-hunting parson of the last generation, and we soon reached the ladder of red and green lavas which overlooks the firth. The immediate banks show the feature locally called Melarbakki,³ horizontal lines bare of earth, regular as if heaped up by man, and generally with inclines too stiff to retain vegetation. We shall see the feature well displayed at Borðeyri and Grafarós. In Canada, and New England also, where the snow covering, which prevents radiation of heat, is blown away by winds, and the ground is frozen for a depth of two feet or more, the surface remains brown and barren throughout spring and summer.

Here we dismounted to collect the "Yaspis," for which the place is famous, and which we had found scattered over the Esja range. The colours are bright red, blue, and blue-green, often prettily striped and branched; the sharp edges cut like obsidian, and the whole appears as impure opaque masses of quartz. According to Dr Hjaltalín, it remarkably resembles that of Hungary, and the dark spots upon the surface are oxide of

¹ The word was taken from Chamounix by De Saussure. It is not, as Petermann says, the *detritus* or rubbish heaps from the bottom and sides of the glacier or ice-fall, but the *débris* of the rock above it.

² This is the popular form of Or-usta, battle.

³ Melr, a sandy hill, and especially a bare bank of sand and stone, familiar to Iceland travellers, has been explained in the Introduction (Sect. VII.). Baring-Gould (p. 284) would derive it from a root signifying to grind; Holmboe from Myldja, to dig, or from Mold, loose earth. Bakki is a bank or ridge, opposed to Brekka (brink), a slope, a hill.

copper, copper glance, or argentiferous copper. Zeolites were abundant, so were almonds of lime in basalt; chalcedonies, milk-white, red, yellow, green, and dark-brown, passing into cachalong and grades of chalcedony and quartz, "cloisonnés" with crystals of carbonate of lime, and superficially clad with capillary mesotype. We often heard in Iceland of the noble opal, which might be expected in a volcanic land—as at Aden, there are whole sheets of it, but none is noble. The Færoese consider it to be a transition between zeolite and chalcedony: I was told of fine specimens found there, but failed to see them.¹

We then trotted merrily past Saurbær (sour mud or dirt-farm; perhaps farm of Saur), and were shown the Tíða Skarð (tide or hour *col*), so called because the congregation riding to mass could be seen when an hour distant. The path along the shore was tolerable, and we had to dismount only at a single swamp. After a total of four hours' slow progress from Miðfell, we reached the main object of our journey, the celebrated Hof of Kjalarnes (Keel-ness), in the Kjósar or "choice" Sýsla. It was the great place of assembly in the south-west, and the chief of the twelve provincial "Things" before A.D. 928, when the Althing was removed to the confiscated estate of Thingvellir. We expected interesting ruins after reading of "Kjalarness, remarkable for the remains of a Hof or idolatrous temple erected towards the close of the ninth century" (Henderson, ii. 3). The Crymogæa of "Arngrim Jonas" speaks with admiration of two Hofes in the north and south of the island. Each had an inner sacellum, or holy of holies, where the victims were ranged in semicircle about the idol-altar (Stalli): the latter was plated with iron, for protection against the pure, flint-kindled fire, which, as in a Parsee temple, perpetually burned there: it supported a brass bowl (blót bolli) to contain the blood, sprinkled with the blood-twig (blót grein) or asperges upon the bystanders. There hung up, likewise, a great silver ring, which they stained with blood, and which whoever took an oath on these occasions was

¹ This stone, like the diamond, threatens to lose more than half its value, if it be true that the State of Queretaro in Mexico has lately (1874) yielded "opals of the first quality, and of all varieties; the milk-opals, fire-opals, girasols or 'harlequins,' and the richest Hungarian or precious opals."

required to hold in his hand. The "Baugr," we are told, weighed two ounces, and was at times worn by the priest: it possibly symbolised Odin's magic "Draupnir," made by Brokkur, most skilful of the dwarfs. Till late years a specimen was to be seen at the Reykjahlíð churchlet. The "oath on the ring" was taken by dipping it in blood, often human, and by saying, after the solemn adjuration of heathen old Scandinavia, "So help me Freyr and Njördr, and that almighty Áss!" (ok hinn almáttki Áss, *i.e.*, Thor);¹ and Norsemen of rank were buried with the Armilla sacred to Odin. "In one of these temples there was also, near the chapel, a deep pit or well into which they cast the victims."

Mallet, and other trustworthy authors of his day, assimilated the ancient Scandinavian places of worship to those of the Persian Guebres and the old Teutons, who would not offend the gods by immuring them, or by roofing them in, which is not correct. The Hof was an enclosed building, whilst the Hörg, in whose centre stood the huge sacrificial stone, was open above. The Scandinavian temple, even that gold-plated wonder of the North, the fane of Thor at old Upsala, was nothing but a long wooden hall to contain the worshippers, with a sanctuary at one end, the true Aryan Estika,² where the "Blót,"³ or pagan sacrifice, was performed by the priest or pontiff (*hof-goði*). The same was the case with the Kjalarnes temple, a rough timber building, burnt by Búi Andriðsson, the slinger.

The situation is right well chosen for effect. This Hof stood

¹ The word Áss, *pl.* Asar and Æsir, is explained by Jornandes, "Gothi proceres suos quasi qui fortunâ vincebant non pares homines sed semideos, *i.e.* *Ases* (Ans in Mæso-Gothic) vocavere." Suetonius makes Æsar an Etruscan word which meant God (probably a plural of Kelt. Es). We find forms of it in the Mongolian dialects, and in the Aryan, Sanskrit (Asura), Keltic, Teutonic (Æsir), German (Anshelm, *p. n.*), and even in the English Osborn and Oswald. *As* appears to correspond with the Semitic *Al*, but the word is still involved in mystery.

² The Hebrew Esh and the Chaldee Esha (fire) are synonymous with the Aryan Is, whence Isti, an offering on the hearth, and Estika the place of offering. Hence the Greek Hestia, fire, hearth, stove, and, with digamma, the Latin Vesta, when worshipped as Genius or Lar familiaris.

³ Blót (or Forn), a sacrifice of men and beasts, horses and oxen, swine and sheep, must not be confounded with Blóð, blood. The Blót-steinn or sacrificial stone, which acted as our gallows, is described as of "oval form and a little pointed at the top," which suggests the Moab-god Chemosh, it stood in every Thing-field, a place adjoining the Hof. I did not remark that the site of the temples always faced south, as Mallet says. The Öndvegi, or high-seat of the hall, was "on the side of the sun," *i.e.*, south.

at the base of a stony land-tongue separated by swampy ground from the iron shore, lined and faced with *diabolitos*, or cruel little black rocks. Opposite sleeps the tranquil bay of Reykjavik, backed by its picturesque blue hills—a veritable Sierra, the backbone of this part of Iceland, all cones and pyramids, notches and saw-like teeth, resembling the sky-lines of El Safá. To the right is a rough rise of lava pushing out jagged points, and to the left towers the Esja pile, with its network of dykes and slides, an extinct Vesuvius faced by white cliffs. Farms and hay-fields are scattered about, probably occupying the same positions which looked upon the ancient heathen gods, with whose departure prosperity left the land. There is not a trace of the building, but the pasty-faced peasants showed us, below the rise, a bit of deep swamp covered with marsh-marigold, and this they called the Blót-Kelda, or victim well—possibly where men and beasts were sacrificially drowned.

After inspecting this humble marvel, we shook hands with the Reverend, and took boat for Reykjavik, where we arrived at 9.30 P.M.

I afterwards was shown the traditional site of the Thór Hof near Stykkishólm; and the utter absence of sign made me neglect to visit that of Vopnafjörð, whose door was translated to the church, the Hörg, at Krosshólar; and the fane of Goðaborg, with its sacrificial stone where “David of the wilderness” dwelt. In 1770, Uno Von Troil (Letter XVI.) offered a tempting list of northern antiquities, some of them possibly pre-historic or proto-historic.¹ But except in cairns, tumuli, and the kitchen-middens mentioned in various places, especially that near

¹ He specifies the ruined castle near Videdal (Viðidalr), some 200 perches in circumference and 20 fathoms (?) high on the north side; another castle near the parsonage Skaggestad at Laugarnaes; remains of heathen temples at Midfjörð, Godale, Viðvik, etc.; the ancient place of execution at Hegranaes; pagan burial-places, like that of Thorleif Jarlaskáld's in the Oxerá island, which yielded old swords and helmets; two Bauta-steinn, great standing stones (Menhirs?), on the heaths of Thingman's and Threkylis, “which probably, according to Odin's regulations, were monuments to the memory of deceased persons;” the grass-grown mound of Reykholt, “said to be raised from the ruins of Sturluson's house;” the Sturlunga Reitr, or burial-place of his family, and forty small figures of brass representing animals and other objects found near Flatey: “unfortunately they fell into the hands of people who did not know their value, consequently they have all been lost” (p. 189).

Snorri's bath at Reykholt, I should expect little yield even from the spade.

The older Edda (*Sigrdrífumál*, st. 34) speaks of cairns—

“ Let a mound be raised
For those departed ;”

and we shall pass not a few during our journeys. It would be interesting to know if any of them have the long adit, the vestibule, and the separate chambers for the dead, which are characteristic of the Mongolian tomb-temples, and of which a splendid specimen is found at Maes Howe.

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CHAPTER X.

NORTHWARDS HO! TO STYKKISHÓLM AND GRAFARÓS.

PART I.—STYKKISHÓLM.

WE are very anxious to leave this

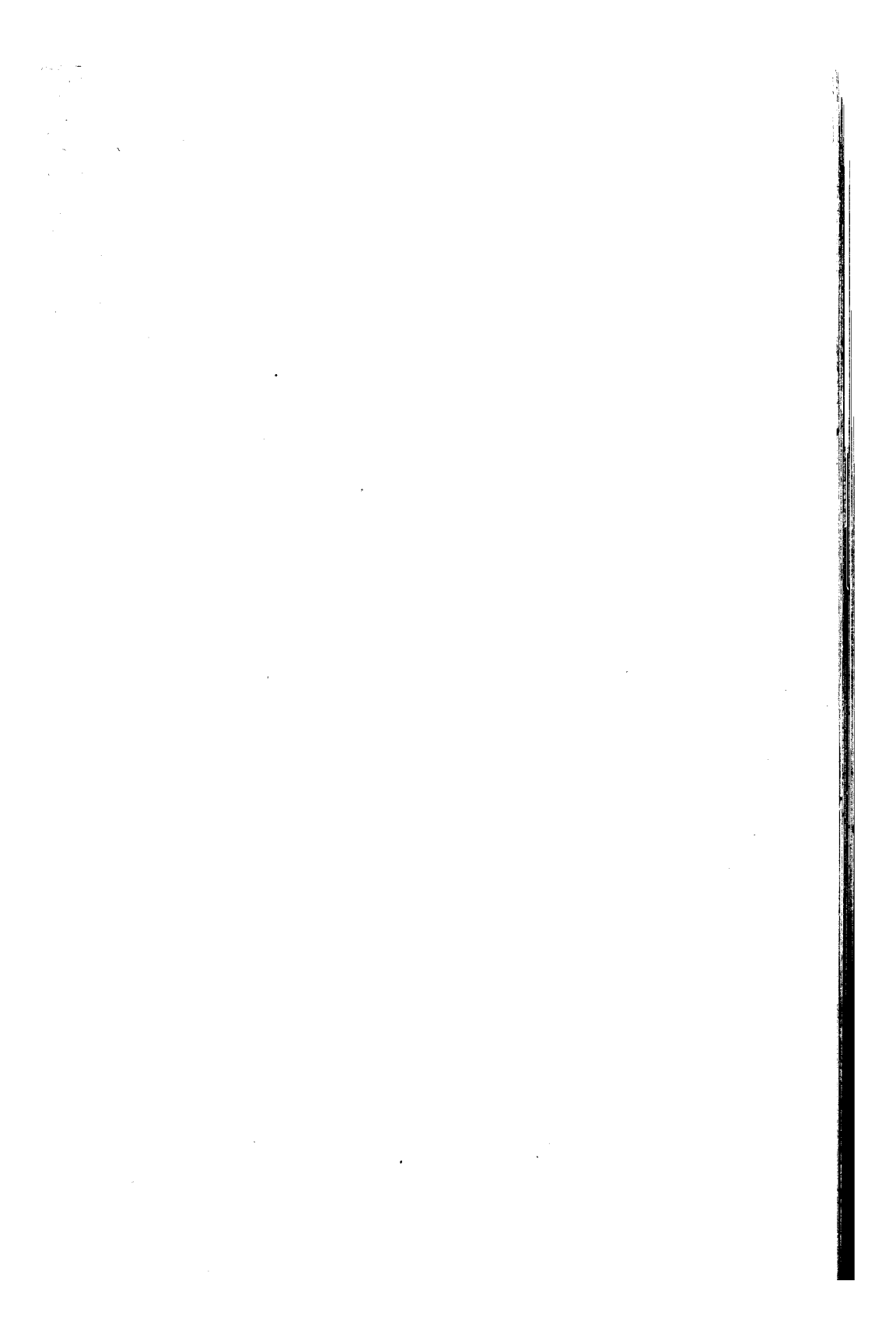
“Tivoli del mal conforte,”

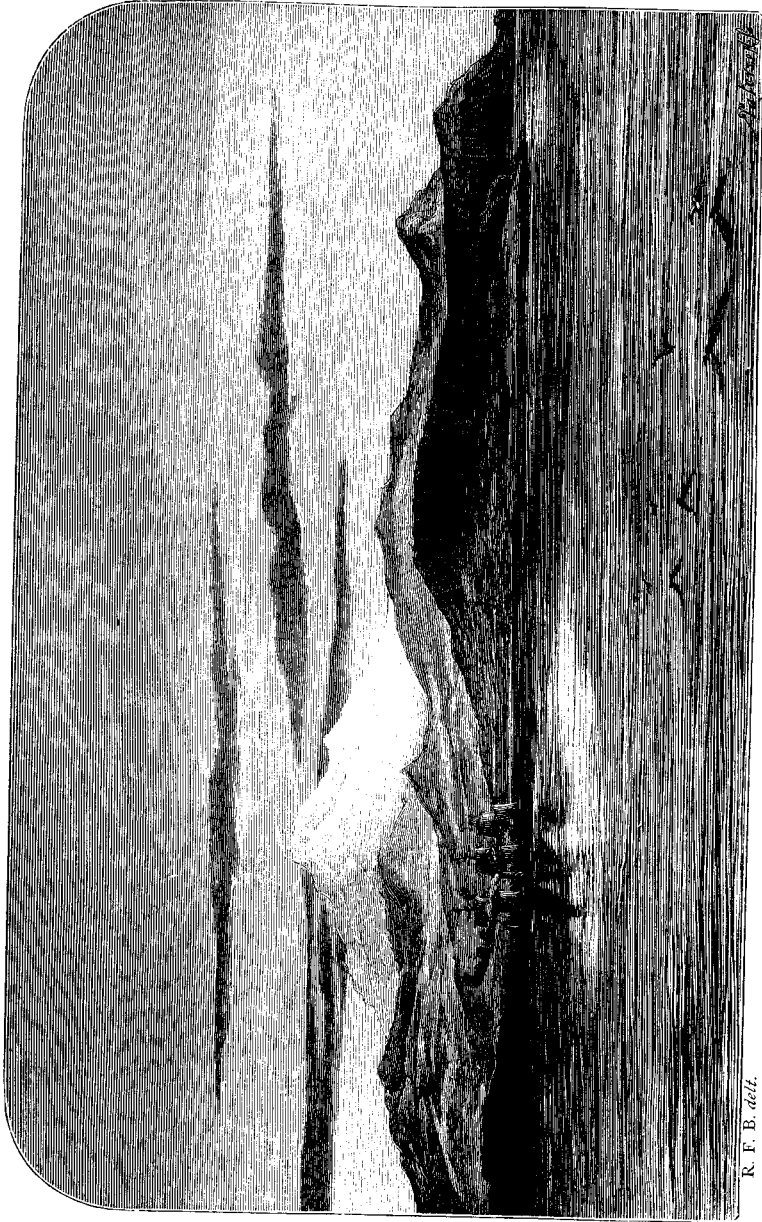
where,

“O piove, o tira vento, o suona a morte.”

The “Jón Sigurðsson,” Captain Müller, ran into Reykjavik on June 26, and next day we set out to prospect Hafnafjörð, the Haven Firth, distant two bays south of the capital. Threading the now familiar islets, we doubled the beacons point of Suðrnes, and passed Bessastaðir, Besse or Bear-stead, a place not undistinguished in island story. It was built by the turbulent and traitorous “Herodotus of the North,” Snorri Sturluson, grandson of Sæmund the Wise, born at Hvamm, in A.D. 1178, and author of the “prose Edda;” he died “in his shoes”—murdered as was the custom of the day. Long years afterwards the place of “Meister Petz”¹ became the Latin School, and now it belongs to a congenial soul, Hr Grímr Thomsen. Followed Garðar, also on the Alpta-nes (swan-ness) peninsula, where a fringe of farms

¹ This popular German expression is evidently the Scandinavian Besse, for Berr or Bersi = Bär, a bear. Besse, again, has a suspicious likeness to the Yakut “Ese,” the most respectful term in the language, = grandfather or monseigneur, applied by those Siberian Mongols to the great white bear, their most formidable foe. Bruin in Gothland being the “king of the beasts,” to do a thing with Besse’s leave is equivalent to doing it without leave. The quaint quadruped is much noticed in folk-lore; “Mishka” is his pet name in Russia; “Beren-garius” is derived from the French Dan Beringer; and Ephraim and Ole Cuffey are well known in the U.S. Persia abounds in tales about his wearing a turband and riding asses.





R. F. B. *del.*

SNÆPELLSJÖKULL FROM THE NORTH.

and houses, each with seven gables or more, ranged in line, not massed together, fronts the faint-green land, and prospects the glaucous northern seas. After a couple of hours, which covered two Danish miles, we steamed down a deep and sheltered sinus, facing the north-west, with double entrance: here a red buoy made us independent of pilot; the tides inflow by the south and race round and out to the north.

The scenery of Hafnafjörð, which Scotchmen compare with that of Scalloway, is peculiar and somewhat grotesque. Like all the south-western parts of Thule, the formation is a hopeless lava-field, bristling with shrublets and patched with green: the outline of frontage consists of points divided by bays of dark-grey sand, and the habitations are perched between the knobs and turrets of the several Hrauns, old and new. The land is comparatively level, backed by a veritable Sierra—the dorsal spine of this part of Iceland—jagged, notched, and vertebral, extending from north-east to south-west. Four brigantines and a lugger were anchored in the clear water, off the five pierlets, the usual planks and caissons, that denote the corresponding comptoirs, one patch of building to the north, another to the south, and a third at the bottom of the bay, whilst an extensive farm-house rose from a dorsum of green, the Hval-eyri or whale strand.

Whilst the steamer discharged her salt and iron pans, we hailed an old, blunt-snouted punt, and paid for the service two marks: the latter process evoked a stare of surprise and a vigorous shake of the hand. I note this proceeding because it is not unusual on the coast of Iceland; it certainly distinguishes the boatman from his hateful brotherhood in more genial lands; especially on the "Hesperian strand." We landed at Flensburg, about the bottom of the bay, the establishment of Hr Johnsen, and walked round to the buildings on the north. All are timber, coloured grey or black, with white windows and slate roofs; each flies its flag, Danish or Norwegian. The latter belongs to the Bergen Company, which has lately taken the place of the Scotch house at Reykjavik, with branch agencies here and at Stykkishólm and Seyðisfjörð. At a little bridged stream women and boys were busy with the corpses of cods, cutting gills, tear-

ing out gullets, splitting bellies to their ventral fins, extracting livers and sounds, and tossing the trimmed carcasses into heaps—they were jolly as Italian peasants at the Vendemmia. Some of the lads were fishing with sinkers of stone, floats of driftwood, and bait of cod. Beyond the stream a new road to Reykjavik was being made, by blasting the lava—as will be seen, it is much wanted. On the north of the bay we inspected the remains of Hr Sivertsen's dry dock, which looks like a line of groins to keep the shore *in situ*. A couple of eaglets were shown for sale; they had lately been taken from a crag in the lava-run to the south-east: the chickens, hardly six weeks old, were about the size of Cochin fowls; their skins showed bare through the growing plume of grey and dark-grey, contrasting with the bright yellow cere, and they opened threatening gapes at the stranger. The price had lately risen to £3, whilst ten shillings a head were asked for the fierce little graveolent foxes.

As usual we had time for a walk inland to the Varða, or landmark, bearing magnetic east of the ship, and distant about thirty minutes: I was anxious to see the behaviour of the lava. Travellers in Iceland everywhere speak of vast outpours which, instead of showing any decided point of origin, appear to have sweated from the soil. They especially quote the lands about Mý-vatn and Krafla, where the contrary is the case: the same has been observed in other volcanic countries, *e.g.*, by Mr Porter in Syria; by Messrs Tyrwhitt-Drake and Palmer in Moab; and by those who have studied the Quito platform. Here, however, we distinctly traced three craters, and it became evident that the mouth which discharged the oldest torrents may have been obliterated by subsequent eruptions. The principal lava-bed¹

¹ It supplied the Hafnafiordite of Forchhammer, leek-green, light, porous, and friable pumice-tuff, containing the following proportions:

Silica,	35·89
Alumina,	27·36
Protoxide of iron,	14·41
Lime,	10·86
Potash,	9·00
Sulphuric acid,	1·55

99·07

Dr W. Lauder Lindsay remarks, "The sp. gr. is usually 2·729; it appears to be a lime-oligoclase, belonging, therefore, to the Felspathic family of minerals."

showed in section a shallow dome between two lateral fissures, where contraction of the edges, and perhaps a less solid foundation, had caused the sides of the stone-river to fall away and form dwarf "Gjás," or longitudinal rifts—we shall see the same action on a grander scale at Almannagjá. The dorsum was broken by sharp edges, the tall crests of split and splintered blisters, the bubbles of the earth where lava overflowed wet ground; coils like tobacco-rolls and ropy corrugations, ripple-marks and plications, showed where the hardening clinkers had been compacted together, and everywhere yawned tunnels and caverns. Yet the field was crossed by a horse-path.

The normal high shingle-bank of the shore formed an inland bog, and the result was a subtending lagoon, as usual without outlet. Farmlots were scattered about, all apparently on made ground. There was a tolerable turbary haunted by whimbrels and loud-voiced terns; the lava-fields belonged to the Snjotitlingue, snow-flake or snow-tit (*Emberiza* or *Plectophanes nivalis*); to the Stein-depill or wheat-ear (*Motacilla cenanthe*); and to the Máriátla or Mary-bird, the white wag-tail (*Motacilla alba*). The three latter were exceptionally tame, and like João de Barros in the Brazil, amused themselves by flirting with the unfeathered biped.

I have described Hafnafjörð at a greater length than it perhaps deserves. Here not a few travellers have declared that the capital of Iceland should be, and undoubtedly it will become the sole place of export for the Krísvík sulphur-fields. The harbour is exceptionally safe, sheltered from all winds: the climate is better than that of Reykjavík; and the sky is often clear when heavy clouds invest the northern heavens. But unless ground is made, there is little or no building room. On the other hand, for an exporting port, Hafnafjörð is perfect. In the early sixteenth century the British corsairs, numbering some 360 souls, had formed a regular colony at Haven Firth—let us hope that the complaints of Christian II. will not call for renewal, when the English miner shall spread himself over the land.

As the sun fell towards the horizon the air became cool; the thermometer on deck showed 58° (F.), and the day gradually assumed a worn and faded look, like a maiden when the sun

breaks upon a ball. Before midnight we were once more at Reykjavik, to start north on the next morning.

The "Jón Sigurðsson" (det Islandske Handelssamlag's Dampskib) belongs to a Norwegian company, who bought her at the high price of \$60,000. An iron hull, her draught is 9 feet, her tonnage 460, and her horse-power 80, which can be raised to upwards of 100: she must burn 12 tons of coal during the twenty-four hours to average less than 8 knots, and this combined with cheap passages prevents her paying.¹ Her good point is the possession of two donkey-engines, the simple Cornish, with 6-inch stroke, which do all the work. Her accommodations are not complete; we occupy the seven sofas in the aft saloon, and of the four cabins three are taken by the officers, including the agent. Broad, tubby, and high out of the water, she catches the wind with her "gawky" telescope funnel, a survival from the days of Watt; she has little sailing power, and she is hardly safe off a lee-shore; in August she was beaten back when attempting to make the Færoes.

The want of punctuality again is a serious disadvantage to "Jón." The departure will be fixed for any hour between six A.M. and two P.M.; you will be hastily summoned on board at nine A.M., and yet not start till noon. There are stated hours of feeding, but they are not regular enough for passenger ships; and provisions, as well as liquor, often run short, because the "restauration" is not obligatory. The delays are ever recurring; covered lighters being unknown, and rye, with other perishable goods, cannot be landed during rain. Again "Jón" is over-officered. Besides captain and two lieutenants, we carry double engineers who speak English; an agent and commissaire; steward, stewardess,

¹ Passengers to Hafnafjörð paid only 2 marks (7d.). The nine days to the north and back were the cheapest known to me—\$9 (= £1) each way, and for living £4, a total of 13s. per diem, including steward's fees, and excellent Norwegian ale and Geneva *ad lib.* Breakfast of fish and meat at eight to ten A.M.; dinner of ditto and coffee at two to four P.M.; and supper, a repetition of the two, at eight to nine P.M. Port, sherry, and Château Yquem = \$1 specie (4s. 6d.); champagne, \$2; porter, \$0.48; and Norwegian beer, 12sk. (3½d.) per bottle. The cooking was excellent, and plate and linen equally spotless; the table was laid *à la Russe* with pleasant little *hors d'œuvres* of sardines and smoked salmon, salt meat, ham, and sausage, in fact what Italians facetiously call "Porcheria." We mentally re-echo Mr Thackeray's hope that Great Britain, who is supposed to rule the waves, will some day devote a little more attention to her *cuisine*.

and assistant steward. The commander, A. W. Müller, is a young lieutenant of the Norwegian navy, which wisely allows its unemployed officers to take charge of postal and passenger steamers. We find the advantage of this arrangement in every part of the establishment. The brasses are bright; the decks are washed; the "squeejee" is used; the offices are clean, and even the spittoons are garnished with fresh heather; whilst the natty little steward and the white-clad cook are pleasing contrasts with the state of affairs on board English craft of the same kind. And we were all charmed with Captain Müller, whose *bonhomie* and obliging disposition made every passenger right sorry to part with him.

June 28.

Steamed out at seven A.M. under Italian skies, and over seas smooth as mirrors, which promised ample enjoyment of this day's "lion," Snæfellsjökull, capping the northern land-arm of broad Faxa Fjörð. As we crossed the Hvalfjörð-mouth, the lay of the land suggested a mighty leaf; the water-line being the mid-rib, with Esja and Akranes representing the up-turned sides. On the south-western slopes of Skarðsheiði, we were shown the streamlet and farm of Leirá, "Rivière de la Vase," which once owned the printing-press; and beyond the broad Borgarfjörð (burg firth)¹ lay the low alluvial flat Mýra Sýsla. The unromantic name, "mire county," becomes ridiculous when Mýra-maður (mud-man) is applied to the dweller: the comical wrath which it excites reminded me of Varnhagen's indignation about the Corcovado or Hunch-back mountain of Rio de Janeiro. Far over the fen-tract, streaked by its three main streams, appeared a suggestive prospect: the long perspective of Jökulls; Ok (the yoke), Geitland's and the northern Skjaldbreið, not to be confounded with the "Broad Shield" on the road to Hekla: this chaos of

¹ Borg, a castle, a city, or a small dome-shaped height, is a common local term. "It may be questioned whether these names (Borgarholt, Eld-borg, etc.) are derived simply from the hill on which they stand (berg, bjarg), or whether such hills took their names from old fortifications built upon them: the latter is more likely, but no information is on record, and at present 'borg' only conveys the notion of a hill" (Cleasby). In Chap. I., I have shown that "borg" and "broch" are sons of the same family.

ice-deserts and volcanoes was ranged in long dorsa, dish-covers, or antediluvian Twelfth-cakes, flattened at the summit, backed by pearly mists of their own growing, with crests rose-tinged by the sun, and feet streaked with transparent blue shadows. In vain we strained our eyes to catch a sight of Baula, the cow, pronounced somewhat like (the land of) "Beulah;" its pale-grey trachytic columns, though 3000 to 3500 feet high, were hidden by intervening buttresses: even Eld-borg, the "Tower of Fire," though quite near the coast, refused to show its grand circular crater and flanks too steep for snow. Here begins the northern Skarðs-heiði, which, passing through the Hnappadals (button-dale) Sýsla, anastomoses with the broken cones called Katlar (the caldrons), and with the great Snæfellsjökull, the Snebels Hokell of Pontanus, and the "Western Jökull" of our maps. The long thin tongue of land, mostly trachytic, has been mightily exercised by the fire below. Here, upon a naked Tenerife, rises a tall grey cone, fronted by a little extinct volcano, flushing angry red; there a wall of brown lava is built upon a base of ruddy cinders and scorïæ, which have assumed the natural angle. It is a land of chimneys and spiracles rising from cinders and other *rejectamenta*; of Öl-keldr or "ale" (mineral) "waters;" of cascades, silver fibres dashing into kieves of snow; of jagged sugar-loaves and saddle-backs; of craters either whole or half torn away; and of Klettur or precipices stripped of the snows which encompass them.

Our attention was directed to the Búða-klettur, or cliffs of Buðir, the celebrated centre of eruption which sent forth the Búðarhraun; and at their base, ending the Jökullháls, the long ochraceous slope that falls from the eastern ridge-flank of Snæfell to the settlement of Búðir (the booths), far-famed for chalybeate springs. Huts for invalids have been run up at this well-known "Kur-ort," but the accommodation is described as rough in the extreme. A little westward again, showing its basaltic pillars, lies "Stapi," the steeple-formed rock, a local Staffa, suggesting memories of Fin M'Coul.

All eyes now fix themselves upon Snæfellsjökull: as the break of the sea upon the shore told us, it rises within three miles, and the accidents of weather, though apparently determined to conceal the calotte of snow, combine to form an admir-



R. F. B. delit.

SNÆFELLSJÖKULL FROM THE SOUTH.

able setting for the imposing scene. The clearness of the heavens had gradually changed to light mists, which hung mid-way upon the hill-sides: whilst "mackerel's-back" flecks the upper air, wool-pack, growing from the snow wreaths, forms dark-grey columns, perfectly simulating a burning coast, and puffy white cumuli cast a shadow distinct as if drawn by a painter's hand. About one P.M. the northern breeze becomes a south-easter, bringing with it a decided freshness and a few drops of rain. The brown and dun coloured cirri, before floating high above the wool-pack, now girth its middle, and there is a grand contrast between the here and the there. Around us a few cats'-paws fan the waters, which, under the lee of the land, stretch smooth as oil, and the air is mild and kindly. In the upper regions rages and roars "Satan's weather;" the cloud chariots rush forward in solid line against the wind, dashing and clashing as they course and career over the battlefield of virgin snow; they are torn to pieces by the artillery of the Storm-Fiend; the troops whirl away in headlong flight, veiling now one cusp of the crater, then another. The westerly peak is connected by a deeply-gashed synclinal slope, a kind of broken saddle-back, with the eastern horn, or rather horns, which appear in the shape of a "Thrihyrningr," while below them, on the oriental outline, a star of jetty basalt shines radiant in the dazzling white. Below the western peak also the binoculars show a broken quoin, a long, black dyke, and a multitude of dark dots protruding from the *névé*, as if men were ascending. The apex has never been reached, and we at once see the reason why: it is—

"Like a jagged shell's lips, harsh, untunable;
Blown in upon by devils' wrangling breath."

M. Gaimard declares the eastern pinnacle to be "*frisée comme des têtes de choux-fleurs*:" it appeared to me umbrella-shaped, with under ribbings of frozen snow. M. Jules Verne was not so happy as usual in making "Sneffles" an entrance for Arne "Saknussemm;" nor could we learn anything about "Scortaris."

The southern front below the *névé* is a steep incline of contorted lava; and a multitude of "hornitos" and parasitic craters, apparently fallen in or choked up, run down almost to the

water's edge, where they form a wall of contorted and caverned layers. Above the cliff a gentler slope has a faint tinge of rainbow-green; and the steeper acclivities are bare, red and yellow, brown and black. As we hugged the shore, I carefully looked for the snow-drainage, and saw none: had there been any, the sea-scaur must have shown it. Henderson rightly reports the general belief that the water set free by the sun passes by underground tunnels to the sea; and, all along this peninsula, the people hold to subterranean connections. But the explanation somewhat savours of the Congo Yellala (rapids), where the mighty mass of the upper stream, "above the ghauts," is supposed to pass through an invisible channel. Herðubreið afterwards taught me that Palagonite allows no surface drainage in the dry season; and this I hold to be the true explanation of a remarkable phenomenon often seen in Iceland.

So striking a feature as Snæfell, whose shadow may be traced in the air, could not fail to engender a variety of tales and legends. Some declare, with the old Sagas, that it is within sight of Hvítserk in Eastern Greenland. Certes its height (4577 Danish feet) is very far from affording a vision ranging over 200 direct geographical miles; but here we are little more than a degree from the Arctic circle, and it is hard to limit the magic powers of refraction.¹ When the bishop declared that it was unassailable by reason of "Dominus Bardus Snæfellsás, cujus sine auspiciis mons Snæfell vix, ac ne vix quidem, superari potest," he alluded to a superstition still preserved. In Hitárdalur,² farther east, is shown a huge feminine face carved in stone, and said to represent Hit, the Ás or guardian goddess of the dale: a "Plutonic affection" exists between her and Bárð or Snæfell's Ás, whom Mackenzie calls a tutelar saint, and whom Charles Forbes uncivilly converts from Dominus to demon. He represents right well the Spirit of the Glacier. Curious to say, the same tale concerning the "Loves of the Mountains" is told in far New Zealand, where

¹ Captain Graah (*loc. cit.*) looks upon this as a mere fable: I do not.

² Hit is a scrip made of skin, and, metaphorically, a big belly. With a short vowel, Hitárdalur means the Vale of the Hot (*i. e.*, volcanic) River, opposed to Kaldá or Cold Stream. According to Cleasby, the derivation from the Giantess Hit is a modern fiction not older than the Bárðar Saga: he also, contrary to other authorities, makes Dominus Bárð a giantess.

Messrs Tongariro and Taranaki (Mount Egmont) are jealous as they are amorous of Mrs or Miss Taupo.

The earliest climbers seem to have attempted the ascent from the east and south-east, where the snow-line extends much lower. Such were Eggert Ólafsson (1755); Mr, afterwards Sir, John Stanley (1789); and the three Britishers who "wrote their mistresses' names in the snow—the emblem of their purity." Sir George Mackenzie (1810) remained below, and Drs Bright and Holland went stoutly up: the latter tells us (p. 55, *Recollections of a Fast Life*) that a snow bridge gave way during the descent, and one leg sank through the arch: he was saved by the poles of the two Iceland guides, but ever after he sought to shun the remembrance. They were followed by Henderson (1814), by Gaimard (1835), and by Forbes (1859).

Of course, none reached the very summit. The Frenchman sensibly attempted it from the north, and found the slope easy: we shall presently see his line of march. Remains only to try the west where the snow lies much higher up, and where the angle does not apparently exceed 25°: here also the distance to the cusps or peaks is notably shorter. The Berúvík farm appears to be a good starting-place. But Alpines who love "climbing for climb" must remember that without ropes and ladders, perhaps kites also, and very likely with them, it will be impossible to do more than has been done by their predecessors.

The accidents of the shore-line preserve their interest: the lone rock Góltr (the deer)¹ and the twin Lón-dráugar (sea-inlet drovgs), donjons of lava 240 feet tall, the north-western appearing as if standing inland, where a red rock acts castle. Beyond it, amongst the conical and degraded craters, we remark the Tröllakyrkja, Kirk of the Trolls, or Giants, who here have a diocesan as well as a governor. They have been busy on and off this coast, as shown by the Trölla-botn, Giant Bay, the Polar Sea between Norway and Greenland; the Trölla-börn (chimneys), or volcanic "hornitos;" the Trölla-hlað, the Giant's Causeway, or colonnade of basalt; and the Trölla-dyngjur, or Giantesses' bowers,

¹ The Dictionary gives Góltr, a hog, and Kolla, a deer without horns, a humble deer, a hind.

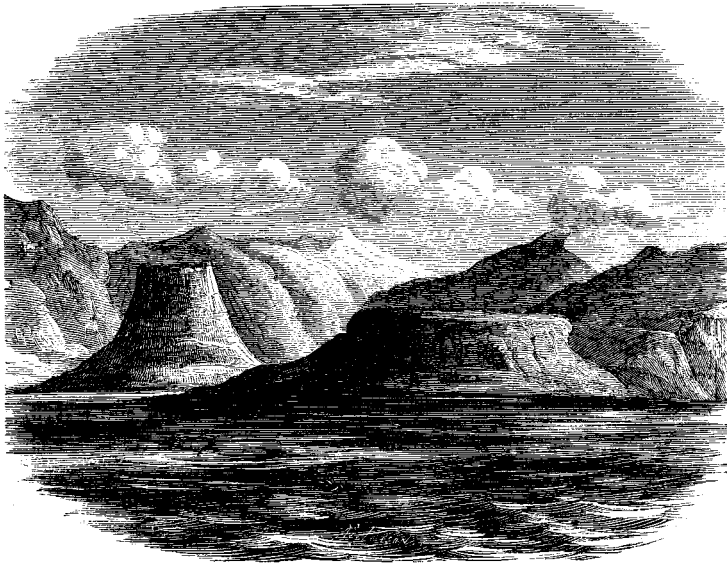
the mamelons near Reykjanes, which erupted in A.D. 1000. And that the dwarfs have not been idle we see by the Dverga Kamarr, their hollowed chambers in the basalt. We run by Dritvík (guano bay), along the caverned cliff, built in various layers, here frosted like silver, there dotted with white points, which prove to be birds. At Öndverðarnes (fronting naze), after an hour of thorough enjoyment, thanks to Dominus Barðr, we turn the corner, the north-westernmost projection of Snæfellsjökull, which the pilot calls Svarta-lot, from the steps protruded by the swart sea-wall; we open the Breiði Fjörð, and again we find waters smooth as a silver plate.

Not that Broad Firth is always so well behaved: at times he rages with frantic violence, mixing sea and sky till the general view is like a well-shaken basin of soup, and confusing all the elements in a chaotic matter, which justifies the much-maligned Pytheas. Many have been drowned when crossing the dangerous sea, amongst them Ólafsson, the Icelandic traveller, in 1767; shortly after he had "addicted himself to the study of revealed religion." During the winter of 1873-74, it was completely invested by the Greenland ice; congelation extended as far as the eye could reach from the highest hill-tops; and drifted bears were slaughtered by the peasantry. There are traditions of skating across the broad bay, of seals being killed, and of ships' anchors being blown away by the furious wind. At least, so says Mr Clausen, who has now taken us in charge. The grandson of a Danish merchant mentioned by Henderson, he has married a wife from Bonnie Dundee, and he has spent some four years at Melbourne, which have opened his eyes to auriferous quartz-reefs, to large deposits of iron, and to other minerals in his native island.

We delay for a while at the mouth of the big bay to swing the ship and prove her compasses, a precaution never to be neglected. The "Jón" then runs at a respectful distance along the northern shore of the Snæfellsjökull tongue, which is not less interesting than its southern coast. Our cicerone points out Enni or Ennisfjall, "forehead mountain," *la montagne de front*,¹

¹ Both translations are somewhat too literal: Enni, a forehead, secondarily means the "brow of a hill," a steep crag, a fronting precipice.

where those who would avoid a long detour inland must pass over an *Úfæra* or "don't travel" path—sands liable to frequent bombardments from the red bluff 2500 feet high. Henderson tells the exaggerated tale of its horrors, quaintly wondering how they were not felt by the young girls who rode with him. Mr Clausen then introduces to us *Ólafsvík*, his ancestral home, two slate-roofed houses, with surrounding huts, nestling in a sheltered bay; and, by way of urging his hospitality, he nobly makes us "free of the cellar."



SUKKERTOPPR AND LIKKISTA (SUGAR-LOAF AND COFFIN).

The eastern point of the "Vík" is *Búlandshöfði* (farm-land head), of whose road Forbes has given a sketch, which verily makes the reader "squirm." From the sea, it appears a cone some 2000 feet high, shelving towards the water, composed of many couches, said to belong to old basaltic formations, rich in zeolites: between them are ledges and *débris* of the columnar type. All own the road to be dangerous for the side-saddle; but also Mr Clausen had travelled over it in winter, cutting steps for his nags in the icy snow, and holding on to his pony's tail.

An adjoining headland to the east showed us the quaint features called the Coffin (Líkkista, the lich or corpse kist) and Sukkertoppr (the sugar-loaf), both rising from a transparent sea, and backed by slate-coloured walls and snow-dotted peaks. The former is an elongated dorsum, with a shallow dome above, steps around its neck, and lower slopes of a brownish-red. The Pão de Assucar, thinly greened, and laterally barred with grey rock, seen from the north-east, is a regular cone, like the Sugar-loaf of Sutherland; and over all hangs, like a halo, the glorious presence of Bárðr's home, whose snow roof stretches far lower than on the southern side. As the sun slants towards the west about 10.30 P.M., his last fires light it like a noble opal in a shining bezel of sleety blue, the glow waxing brighter and brighter till the snow, all aflame, dims every other object of earth, sea, and sky. At last the fire burns slowly out, a tall white spectre, the ghost of the morning's scene, towers in the upper air, and the world becomes once more cold, dull, and pale—by contrast colder, duller, and paler than ever. It had been a "thing of beauty," even though the incomparable scenery of Magellan's Straits, rendering me not a little fastidious, was still fresh within my brain.

As we steam eastward we are shown the red Hraun of the Berserkir,¹ two light-coloured knobs thrown out by the red and broken forms of the Drápuhlíðarfjall. It has been asserted that Dr Backmann dug into the Bersekja-dis, and found two skeletons, but men on the spot know nothing about these *fouilles*. The story of their acting Macadam is too well known to repeat, since

¹ As the "Berserkir" is becoming a power in novelistic literature, it may be advisable to give the correct form. The singular nominative is Ber-serkr, the plural Ber-serkir, and the oblique form Berserkja, e.g., Berserkja-dis, cairn of the Berserkir. Cleasby (sub voce) shows that the common derivation, taken from Snorri, "berr" (bare) and "Serkr" (sark or shirt) is inadmissible, and greatly prefers "Berr" (a bear), whose skins were worn by athletes and champions; perhaps also here we find traces of that physical metamorphosis in which all the older world believed. The "Berserksgangr" (*furor bersericus seu athleticus*), when these "champions" howled like wild beasts, gnawed their iron shields, and were proof against fire and steel, may be compared with the "running amok" of the Malays, and the "bhanging up" of the Hindu hero—invariably the effect of stimulants. This fact considerably abates our interest in Eastern tales of "derring-do," for instance, in the account of the two sentinels at Delhi, whose calm gallantry, probably produced by opium or hemp, is noticed in pitying terms by Sir Hope Grant.

it appeared in the Eyrbyggja Saga; we may observe, however, that it has every characteristic of the normal Icelandic legend. There is the unavoidable woman in the case, Asdisa, "a young, haughty, fiery, and robust damsel." The chief actors in the tragedy, Halli, Leiknir, and their destroyer Arngrim, surnamed Víga Styr (the stirrer or restless one), are all poets; and the latter characteristically boasts of a foul and cowardly assassination, as if it were a deed worthy of a Bayard. The highly honourable nature of murder pure and simple, unaccompanied by aught of risk or gallantry, belongs to a certain stage of society, and the Eastern reader finds many instances in the career of Arab, Persian, and Hindu heroes.

And now, in the cold, fierce wind, we run past a scatter of islets, especially noting Elliðaey (Ellwich Isle), the private property of the bishop, whose fair daughter is on board. The light-green surface, effect of summer growth, supports a few wrack-eating sheep; and the dark masses of subcolumnar basalt, bluff to the north, and pierced with black caves, are silvered over by troops of birds. About eleven P.M. we turn sharp to starboard, and sight our destination, Stykkishólm, not Stockholm, not *arène de morceaux*, but "holm of sticks," that is, bits of pillared stone: the settlement's name is taken from one of the three rock-islets to the north, Stykkisey. Leaving tall Súgandisey (wind-gush isle) to the east, and the larger Landey to the west, we presently find ourselves in a well-defended, dock-like inlet, with a landing-place above high tide. The comptoir was of more importance than usual, Stykkishólm being then the capital of the Western Quadrant: a schooner, two brigantines, and a smack lay at anchor; seven flags were flying; of the eight houses two were double-storied, and the parsonage boasted of a white belvedere. Crosses on the rock-dyke, one looking from afar like the ancient Irish, suggested a non-existing Calvary. The oldest tenement was that occupied by the Amtmaðr, or high sheriff.

My first care at Stykkishólm was to see the Hr Administrator A. O. Thorlacius, agent of the steamer: he came on board with his son, but, unfortunately, we were "barbarians to one another." The father has taken meteorological observations once per diem, at noon, since November 1845: in 1866 he was provided with

instruments by the Board of Trade, and his labours have appeared in the journal of the Scottish Meteorological Society.¹

Early next morning we set out, mounted on rat-ponies, and guided by Mr Sýslumaðr Skúli Magnússon, to see the curiosities of Thórsnes, the little peninsula which was once a hot-bed of heathenism. Some cantonniers were working at the path, which combined the Brazilian pleasures of slippery plank-bridges, foul causeways, and corduroys of slush; we were compelled to round the long inlet Vésvágr or Vé-vágr (holy bay), because it cannot afford a ferry: here broken bottles showed a habit of picnicing. Turning to the south-east we sighted Helgafell (holy hill), a common name, as we have seen about Reykjavik. This lump of subcolumnar basalt, perpendicular to the north and east, and falling with an easy grassy slope to the south-west, after being honoured as hillock never yet was, was chosen for one of the earliest Christian churches; and people still pray at the dwarf chapel on the "Mount of Immortality," because the habit is 800 years old. It still preserves intact the memory of Snorri Goði (the priest of Thor), "who was good to his friends and grim to his foes:" the Eyrbyggja Saga tells the tale of his intrigues, cruelties, and murders, Arnkell, whose tumulus is hereabouts, being the "Charles" or good boy of the story. We were shown the Munkrskarðr, where the holy men bade farewell to their beloved monastery, a kind of Arctic "Last Sigh of the Moor"—an illiberal English sacerdos adds, "their heart, doubtless, was with their treasure, buried in a hill-side." Monks, you see, are not like other men; they must always be either almost superhuman, or, that failing, subhuman.

Thence we turned to the east, where Thórsnes lies, and whence the old Thunderer looked out upon Hofsvágr or Temple Bay.² Here, in A.D. 883, Thórolfr Mostrarskegg (of the big beard), following the pillars of his high seat round the head of Snæfells-jökull, took possession of the ground with burning firebrand, as was the significant custom of the day. The good guide, being utterly guiltless of all local knowledge, led us up to a substantial farm-house, at whose door stood a blear-eyed old franklin. Our

¹ For the observations at Stykkishólm, see Introduction, Sect. II.

² Henderson (ii. 67) places "Hofstad" on the western side of the peninsula.

nags, which attempted to crop a few blades of grass, were incontinently seized and tethered to a long cord—after the open-handed hospitality of the Syrian peasant, who, however poor, supplies your animal with barley and bruised straw, I was struck by the change for the worse. Usually the people are to be pitied; they would, perhaps, be hospitable, but they cannot afford it where every ounce of fodder is wanted. Even in the wealthier age of paganism the guest who outstayed his three days was said to “sit,” and was held to be a cosherer or vagrant. This “bonder,” who had 200 head of sheep in his “rétt,”¹ and 300 elsewhere, evidently had better use for his grass than the pauper. Moreover, there is far more ceremony in hyperborean than in sub-tropical lands. If the farmer be absent, an Icelander will not enter the house; the women know nothing, and prefer running away from strangers. When the master is at home, the guest is too shy to ask for what he wants. After a sufficient experience, I ended by dismounting, walking up to the door, offering a pinch of snuff and a drain from my brandy-flask, and roundly explaining my general requirements, to be paid for, *bien entendu*. A stranger may do this, but the natives have a punctilious regard for one another’s feelings, an admirable but uncomfortable quality, which prevents their taking or tolerating any such liberties.

The steamer was to start at ten A.M., and the garrulous old man was determined to extract every item of European news from the guide, whilst Mister Sýslumaður could not disappoint a constituent—the average dawdling is worse in Iceland than in Peru. At length he sent with us his son, and this nice-looking lad led us to a shore fanged with hideous stumps of basalt, grey rocks wetted by the perpetual wave, and long muds foul with wrack, which resembled cods’ sounds. It had a certain weirdness of aspect, especially its background, the torn and tormented flanks of Drápuhlíf,² an extinct volcano to the south, famed for

¹ Réttir are the big public pens, Dilkar the small folds round the former, and the Stekkjarvegr is the spring-fold; all are dry stone walls, as on the Libanus.

² As the word is written, it can only signify “Lithe (slope) of the panegyric;” Drápa being a poem in honour of gods, saints, kings, princes, and so forth, as opposed to the short panegyric “Plocker,” and to the longer “Hróðr,” or “Lof.” The boatman, however, explained it to mean Slope of Death, *i.e.*, where some battle took place, and this would be derived from Dráp, slaughter. Both words (says Cleasby) come from Drepa, to strike. There is also a dispute concerning the formation of certain beds in this mountain, some holding that they issued

minerals and alternate strata of trap and ropy lava. The only remains of the Virki ("work"), where the local Thing met, were vallum-like lines of green sod; and the Dóm-hringr, doom's ring or judgment circle, was a triangular shape, with the base facing the shore. Not a sign of the Hof was to be seen; the Blótsteinn, or sacrificial stone, was asked for, but beyond legends of buried treasure, nothing was known to the incurious peasants.

On our return to Stykkishólm, we called upon the Amtmaðr (high sheriff), Hr Berg Thorberg, who, fortunately for us, spoke good French. He assured me that Hr Skuli Magnússon had found the Blótsteinn, and we again accompanied him to sketch it. After thirty minutes, a boat placed us on the eastern side of the little peninsula, and we landed upon the broken basalt, weedy and slippery as ice. This shore is still known as Thórsnes, and the place as Thingvellir. After vainly seeking information at a cottage, inscribed T. (Teitur) G. S. Guðmundsson, 1869, we found a shepherd lad, who steered us through the swamps to a rise on the west, a site marked by a Varða of rock. The "Stone of Fear" was a bit of basalt, six feet long by six feet two inches broad, and half buried in the ground: at least, such was the article shown to us. South of it lay the Doom-ring, a circle of rough rocks, twenty-five feet in diameter. Between the two were buried the criminals whose backs had been broken upon the stone.¹

In these forensic and sacrificial circles the judge, still called "Deemster" in the Isle of Man, faced eastwards, with his back to Holy Hill, at which man might not look without ablution. On his right, the direction of Múspellheim, the place of honour, from the profound popular reverence for the sun, stood the

from the same crater successively, and others, simultaneously, from different mouths.

¹ Henderson (ii. 68) places the stone in the swamp, not on the hill-side; Forbes (219) adds that it was in the centre of the Doom-ring. If so, we did not see it: moreover, Mr R. M. Smith heard from Hr Thorlacius that we were misled. I cannot help believing in the shepherd-boy; and there was no mistaking the Doom-ring. For the most part, the instruments of death stood in the fens where certain classes of criminals were drowned. On the other hand, the Landnámabók (chap. xii.) says, that after the profanation of Helgafell (Monticulus Sacer), Thórðr Gellir "forum (Thing) in *superiora lingua loca* ubi nunc est, transportavere . . . ibique adhuc conspiciendus est lapis Thorinus (Thórsteinn), supra quem homines sacrificio destinati, frangebantur; ibi etiam circulus judicialis existit in quo homines ad victimas condemnabant."

accuser. The accused was on his left, in the line of Niflheim, the nebulous north, a scene of horror and guilt, which the old Germans called midnight. The twelve doomsmen occupied the space within the Dóm-Steinar, where benches, here probably of turf, were provided for them. The sentences delivered from the "Circle of Brumo" were almost poetical in their ferocity. The old pagan Scandinavian was the incarnation of destructiveness. His was not the fickle pugnacity of the Kelt, who would fight and shake hands within the hour; nor the feeble pride of the classic, who only battled to "debellare superbos:" he was a Shiva, satisfied with nothing less than absolute annihilation. The blood-men were warned lest "weak pity step in between crime and its fitting punishment." The following was the form of outlawry sentence: "For this we judge and doom thee, and take thee out of all rights, and place thee in all wrongs; and we pronounce thy lawful wife a lawful widow, and thy children lawful orphans; and we award thy fiefs to the lord from whom they came, thy patrimony and acquired property to thy children, and thy body and flesh to the beasts of the forest, the birds of the air, the fish in the water. We give thee over to all men upon all ways; and where every man has peace and safe-conduct, thou shalt have none; and we turn thee forth upon the four ways of the world, and no man shall sin against thee."

And this doom was to extend "wherever Christian men go to church and heathen men sacrifice in their temples; wherever fire burns and earth greens; wherever mother bears child, and child cries for mother; ship floats, shield glitters, sun melts snow, fir grows, hawk flies the long spring day and the wind stands under his wings; wherever the heavens vault themselves, the earth is cultivated, the gale storms, water seeks sea, and men sow corn. Here shall the offender be refused the Church and God's house, and good men shall deny him any home but hell."¹

¹ Compare this Northern effort with the poetical Greek curse at the Akropolis of Athens: "I entrust the guardianship of this temple to the infernal gods, to Pluto, and to Ceres, and to Proserpine, and to all the Furies, and to all the gods below. If any one shall deface this temple, or mutilate it, or remove anything from it, either of himself, or by means of another, to him may not the land be passable, nor the sea navigable, but may he be utterly uprooted! May he experi-

And the old Scandinavian punishments were sanguinary and atrocious as those of the Thulitæ, of whom Procopius spoke. Criminals were cast to wild beasts, burned and boiled alive, flayed and impaled, to say nothing of mutilation and such a trifle as tarring and feathering.¹ Cowards were drowned or smothered in mud. Forest burners were exposed to the fire till their soles were roasted. Barkers of trees had their internals nailed to the injured bole, and were driven round it till their bowels took the place of the despoiled coat. Removers of boundary-stones were buried to the neck and ploughed to death with a new plough, drawn by four unbroken horses, and driven by a carle who had never before turned a furrow. And so forth.

The aspect of the Dóm-hringr vividly reminded me of the old theory held by Sir Walter Scott, to mention no others, that Stonehenge and similar buildings were Scandinavian courts of judicature, in which criminals were doomed and put to death. One of these fora was fitly described by Olaus Wormius as "*Undique cautibus septum*"—hemmed in on all sides with stones equal to rocks, and usually disposed at a bowshot from the centre. So Camden says of Stonehenge it is a "huge and monstrous piece of work such as Cicero termeth '*insanam substructionem*:'" his sketches make it like a dance of giants (*choir gaur* or *chorus magnus*), justifying Walter Charleton's "*Chorea Gigantum*, vulgarly called *Stone-heng*" (London, 1663), which he also restored to the Danes. Mr Fergusson's anti-Druidical protest was anticipated as far back as 1805 in the "*History of the Orkney Islands*" (Longmans, London), by the Rev. George Barry, D.D., who justly observes, "These extraordinary monuments have, like almost all others of the same nature, been supposed Druidical; but with very little reason, since there is not the least shadow of evidence that that order of men was ever within these islands;" while Coxe justly calls the Druids

ence all evils, fever, and ague, and quartan, and leprosy! And as many ills as man is liable to, may they befall that man who dares to move anything from this temple!" Perhaps the most picturesque composition of the kind is the inscription upon the sarcophagus of Eshmunazar, king of Sidon—at least in the translation of the late Duc de Luynes.

¹ This form of "lynching" is popularly and erroneously supposed to have been invented upon the Atlantic seaboard of the United States. The Brazilian "Indians" practised it by way of ceremonial toilette.

a "favourite order of men, under whom we are apt to shelter our ignorance." Stonehenge and its chiselled, tenoned, and morticed trilithons and cronets, though finished with more art, are evidently the same class of building as the Standing Stones of Stennis; and both would appear to represent in comparatively genial climes and populous regions the rude Doom-ring of Iceland. I need hardly notice the opinion of the Rev. Isaac Taylor, who, in a wild and ignorant book (p. 43, *Etruscan Researches*; London, Macmillan, 1874), converts to Turanian sepulchres the monuments which covered the Wiltshire downs, and who considers the stone circle a survival of the weights which kept down the skin tents. Though bones have been found within such buildings, and without the rings, the sepulchral use may have been of later date.¹

PART II.—TO GRAFARÓS.

Our next station was at Flatey, on the other side of the Breiði Fjörð, one of a vast archipelago which we were slowly to thread. Like the "cedars of Lebanon," three things in Iceland cannot be counted—the lakes, or rather ponds, of Arnavatnsheiði; the

¹ Waring and many others suggest that the "Prostrate Stone" lying north-east of the horse-shoe or elliptical opening of the Stonehenge trilithons, and the three—formerly five—fallen stones inside the vallum, represent the first or outer circle, like that of Avebury. It is usually assumed that the "Friar's Heel," the single block lying farther to the north-east of the "Prostrate Stone," served for astronomical purposes, the sun rising over it on the summer solstice, and striking the sacrificial Thorsteinn or Blótsteinn (4 by 16 feet). The same arrangement is remarked at Stennis. There seems, however, no reason why both should not have been members of an outermost circle.

Martin (*Description of Western Islands*, London, 1716) has preserved the popular tradition that the sun was worshipped in the larger, and the moon in the lesser, ring of the Orkney ruins. Later writers deny the honour of erecting the circles of Stennis and Borgar (anciently Broisgar = Brúar-garðr) to the "Northmen," because such circles are found only in localities where a Keltic race has ruled, and because "such names as Stennis and Stonehenge prove that they had existence before the people who so designated them arrived in the country." The *causa* appears to me a *non causa*, especially if they were Thingsteads and Doom-rings, which in later days would take modern and trivial names from their sites or peculiarities of structure. On the other hand, the absence of tradition concerning the popular use of the buildings, which we might expect to linger in the minds of men, is a serious objection.

hillocks of Vatndalshólar, and the islands of the Breiði Fjörð. Similarly it is said no Laplander has lived long enough to visit all the islands in Lake Enara, and no Swede has touched at the fourteen hundred of the Malar Lake. The holms lie mostly at the bottom and on both sides of the Broad Firth, and, being girt by broad reefs, they demand no little prudence. Some are private property, but the greatest part belongs to the parsonage of Helgafell, whose incumbent lives at Stykkishólm. These quaint forms, the birth of upheaval and the toys of earthquakes, all show traces of columnar and subcolumnar basalt: the colour is chiefly black, whitened by gulls and sea-fowl; some are dimly green with a house-leek bearing a pale flower; and here and there a Húshólmr supports a homestead. We remark the "wash" dry at ebb-tide; the shoal, the dot, the knob, the drong, the "cow and calf," the dome, the pinnacle, the "gizzard," like the Moela of Brazilian Santos: the nub, the skerry, the shield, the line, the ridge, and the back: castellations are common, and one at the mouth of the Hvammsfjörð (comb-firth) bears two dwarf cones passably resembling broken turrets.

Our signals failed to attract the pilot, who lives at Bjarneyjar, and thus we were forced to rely upon ourselves: the grey weather and spitting rain were, however, far less risky than sleet and snow. To starboard lay the Dala Sýsla, a fat lingula of land, bounded south by the Hvammsfjörð, and north by the Gilsfjörð. In the latter direction a neck of about five miles broken by a lake, leads to the Húnaflói (bear-cub floe),¹ opening upon the Polar Sea, and a canal like that of Corinth would save rounding the great three-fingered palmation, the work of west winds² and Greenland ice, which forms the north-west of Iceland. Once upon a time a Troll, we are told, attempted to anticipate the *specialité* of M. de Lesseps, but he was caught by the sun before his task was done, and, after the fashion of those days, he was incontinently turned to stone: so travellers are still obliged to

¹ We have retained the word "Flói" in *ice-floe*. It properly means the deep water of a bay opposed to the shallow water along shore.

² We see in Ireland, Scotland, and the English coast about Bristol, the effect of these gales: they prevail along the coast of Brittany, become less violent in the Bay of Biscay and along Portugal, and finally the Mediterranean, as the regular outlines of the Balearics, Sicily, and Malta prove, ignores them.

ride across the neck. Hvammfjörð (comb-firth) is a fair specimen, says Munch, of how trivially local names arose; the Landnámabók (ii. 16) tells us that here (Kamsnes) Aud Ketilsdóttir *pectinem suam amisit*. But Hvammr also means Convallis, a place where several dales meet, or simply our "combe." The Dale-County peninsula ends westward in the Fellströnd highlands, whose chief height is called Klofi or Klofningr (the cloven), because it separates the two inlets; from the north its profile, projecting the lowlands of Dægverðarnes (daywards naze) reminded me of bottle-nosed Serafend (Sarepta) as seen from the Sidon road. Off this headland we sighted a couple of small whales: in the early part of the century we read of a school numbering some 1600, but now-a-days the long-fibred Medusæ seem to be a waste of cetaceous provaunt.

At length the south-easter brought up heavy rain, veiling the shore, and compelled us to turn for occupation to the study of our fellow-passengers. At Stykkishólm we had shipped a Dr Hjörtr Jónsson, an Icelander who spoke a little Latin and English, and who was very civil and sea-sick. He had studied under Dr Hjaltalín at Reykjavik, and had finished himself by a year at Copenhagen. The feminine part of the "old lot" has at once thrown off the civilised hat and adopted the ridiculous Húfa: the black or the grey shawl is sometimes worn over the head with something of the grace that belongs to the ornamental *mantilla* and the useful *reboso*. All are in leathern *bottines* which show the toes carefully turned in when walking or sitting. First-class and second-class of the ruder sex are distinguished by boots and "Iceland shoes:" so the railway clerk in the Argentine Republic ranks you by your spurs, the larger they are the lower you go. We distinguish the Danish-speaking by a perpetual recurrence of "Hvává"—hvad behager, s'il vous plaît?—from the Icelandic-speaking by an ejaculated "Há," explosive, aspirate, and nasal enough for Vikings and Berserkir. There are half-a-dozen students with bowie-knives and long canes, like officers of the United States navy. The signs of Burschdom are noise, inquisitiveness, republicanism, hard drinking, and consequent "hot coppers," especially in those who are "unco heavy on the pipe." They gather together, singing Luther's hymns and

national Norwegian airs, whilst not unfrequently they intone in chorus—

“Doolce reedentem Lalagen” (pronounce *Lala-ghen*) “amábo
Doolce loquentem.”

They gather round us, forgetting the venerable axiom, “Manners makyth man;” they pester us, and ask in roaring voices about the English “hestar,” for they naturally hold us to be horse-dealers, and, as the universal bow-legs show, all are “horsey” from babyhood. Their luggage consists mainly of old saddles and bridles, and of nests of sealskin riding-bags. They talk politics, they regret the old Iceland republic, and they hope to see it once more—this must be expected from students, and we find it even in the law-abiding Brazil. Two of them are never sober, and huge horns of spirits acting bottles supply the *de quoi*: all drink hard at each landing-place, which leads to the “stool of repentance” next morning. Their heartiness, not to say their roughness, is dashed with a curious ceremoniousness: they never omit pulling off their hats, an uncomfortable practice perhaps less common in England than elsewhere; they shake hands whose warts cause a shudder; and, when they exchange the parting kiss, it is with deliberation—first prospecting the place, then planting a “rouser” upon each cheek, and finishing off full upon the mouth.

The Coryphæus of the band is a little rather reverend, freshly ordained and stationed at some hole in the Skagafjörð, which elicits not a few mild witticisms connecting his domicile with purgatory. Sir Guttormr, who violently objects to his name being translated “*Dei vermiculus*,” makes the serious mistake of disputing on Old Testament subjects with Mr Levi, a Norwegian Jew, whom I had at once diagnosticised and drawn out by a “Shalom lach:” Apëlla is now going to try the north, last year he and his partner “did” the south. Their business consisted in women’s hair, especially the tints which command such large prices in the southern marriage-marts; and, unless report greatly belie them, they collected their booty by “screwing” husbands and brothers up to the cutting point with spirits.

Two hours’ steaming through the maze of rocks placed us at Flatey. It occupies nearly the centre of the Eyja-Hrepp (island

parish), and it is connected in trade with the Svfeyjar or Isles of Sleep—ah! how different from

“That happier island in the watery waste”

which lodged the lotus-eaters. Flat-isle is, of course, not flat, but rolling ground, trending east-north-east to west-south-west, with a dwarf bluff in the former, and a high basaltic rib in the latter direction. The length is at least a mile, by about three-quarters of utmost breadth, though Henderson (ii. 91) gives it only one mile in circumference. Curious to say, the little rock has a name in literature, through the “Codex Flateyensis,” or annals of the Norwegian kings.¹ In A.D. 1183 its monastery was transferred to Helgafell, and, during the Reformation, its ninety-six farms were duly secularised and annexed by the Danish Crown. At present about a quarter of the island belongs to the Church; and thus the clergyman is no longer obliged, like Sira Andreas, to “follow the original employment of Zebedee’s children,” and be “particularly dexterous in catching seals.”

We landed on the north-western side of the island, about its middle length, at a regular dock fronted by a natural breakwater of basalt, upon the usual scatter of slippery wrack-grown rocks backed by a few yards of black sand. A rude causeway, not made by man, leads up to the settlement, half-a-dozen houses, one wholly wooden and double-storied; the rest of the normal ground-floor type, overgrown with the white-flowered weed. The huge vats and oil-tuns were not wanting: there was a windmill like that of Reykjavik for grinding imported rye, and higher up stood the church. A wooden box like those of the old Saxons, it had a long coffin for a deceased clock, a steeple of two stages, each with a white-framed window staring out of the black tar: where the apse should be, the outline was stepped after Iberian fashion. The cemetery lay around it, with a few monuments and railings neglected and broken down, and this being Saturday, of course the building was closed. We walked to the

¹ The work of Jón Thórðarson and another compiler in the fourteenth century, who transcribed from old MSS., and bring the history up to A.D. 1395, that is a century before the Columbian discovery. A facsimile specimen of the vellum manuscript used by Professor Rafn as the basis of his text is given in the “*Antiquitates Americanæ*.”

north-east over the wet grass and warty ground, and then turned south-west towards a sloping and time-wrecked cross, crowned with an old billy-cock and a fragmentary stocking. This is not intended for irreverence, but to show that the place is to be respected by hawks, ravens, and strangers; the utilitarian idea comes from Norway, where, indeed, we must go for explanation of many Icelandic peculiarities. The eiders, here and in Stykkishólm, float about the harbour tame as horse-pond geese; at times a Skua causes the duck to bolt with prodigious cackling, followed by its young, piping their plaints. The turf is shaven and hollowed to make the nests, which affect the wrinkles and poek-marks of the surface, and the places are marked by pegs; as at Engey, some show eggs, others ducklings, whilst others are abandoned with the down carelessly left to decay.

We returned on board in a greasy boat, with huge hooks fastened to wooden bars, and baited with flesh of the sharp-biting puffin. The "sea-parrot" nests in the sand, making holes two to three feet deep, and clinging to one another when dragged out. The head and feet, wings and entrails, are often mixed with cow-chips for fuel, whilst the breast is salted. On this occasion, and many others, I remarked that the sailors prefer turning sunways or to the right (*deasil* or *dessil*), the left or "widdershins" being held uncanny. The superstition is rather Aryan than Semitic, the former affecting Pradakhshina, whilst the Tawáf of the latter presents the sinister shoulder. So in the marriage ceremony of the Russian Church, bride and bridegroom thrice circumambulate the temporary altar.

June 30.

During the night we had steamed along the bold bluffs of Barðaströnd in the Sýsla of that name: now we prepare to double the great north-western projection of Iceland, which somewhat resembles south-western Ireland. The country people extend the right hand horizontally: the thumb forms the length, whose nail is Snæfellsjökull; the hollow between pollex and index represents the Breiði Fjörð, and the other fingers are the digitations of the *anneææ*, North Cape being the ring of the little finger.

The day broke frosty but kindly, like a fine November in

England, with a sharp north wind, and an oily sea under lee of the land: stationary cirri stood high in air, and westward gleamed a clear stretch of green-blue sky. After Patriksfjörð, another remnant of the Írar or Eriners, and Tálknafjörð (whalebone firch), both of small importance, we open Arnarfjörð (Erne firch), the most important in the north-west after the Ísafjörð. Each greater *massif* is jagged into a saw-blade of minor peninsulas, forming shallow arcs, probably the work of ancient glaciers meeting the Greenland icebergs, and every valley is now bisected by its own drain, set free from the upper snow-fields. There is similarity but no sameness in the wild view. The cliffs give the idea of having been shot up their present height perfect and complete; the tableland, some 2000 feet high, and, of course, snow-covered, appears evenly upraised, yet laterally split in all directions by jagged rifts. Seen in profile, the cliffs form a long perspective of headlands, quoins, and bluffs, ranging between 500 and 1500 feet in height; and the strata appear to be horizontal, or little inclined. The bluffs, when faced, represent trap-ladders alternating with layers of reddish tuff: when distinctly stepped, they often fall steep and sheer to the unfathomed sea; in other places they are footed by a talus of *débris*. The former shape appears most commonly in the southern projections; in the northern tongues the Plutonic spines occupy far less area than the verdant lowlands which depend upon them, and these shallow slopes and plainlets are the sites of homesteads. The bleak table-lands above the bluffs are barely grown with hardy shrubs and gramens; the snow gradually increases as we go northwards; the patches and powdering become long streaks, and at last they touch the water's edge, where every wave besprinkles them. Thule is here fairly Snowland.

All these projections culminate southwards in the great Gláma (clatter) system, and northwards in the Dránga Jökull, these two being the only important masses in the north-western corner of the island. They are said by those who have ascended them ¹

¹ In June 1862 Mr Shepherd and his party succeeded in mastering the Dránga Jökull. Upon the summit the barometer marked 26·5" (at sea-level 29 inches, not degrees), and the thermometer 32° (F.). Glámu (Dict., Glam, Glamr, Glaumr, glamour) is translated "noisy Jökull," from the *hljóð* (Germ. Laut), or the clamour, the crashing and clashing of ice-slips and torrents.

to be becoming one great glacier, but as yet there are no exact data whereby to calculate either the measure or the periodicity of abnormal glacier action. The Gláma throughout our cruise was capped by clouds, which occasionally burst, and showed the slope and shoulders of the great hunchback.

We then opened the long and winding sea-river known as Dýrafjörð (wild-beast firth),¹ at whose northern bend rose the ridge of Gnúpr (*Cacumen montis*), foreshortened to a regular cone. A few farms were scattered about; and behind Gnúpr lay Mýrar, the northern station of the French frigate. The sea was by no means desert, we saw at the same time a schooner and half-a-dozen luggers, Gauls and Danes, the latter mostly confining themselves to the Arnarfjörð and the Ísafjörð. This must be a good line to attack the western horn of the Gláma, upon which Gunnlaugsson places a trigonometric mark, with farm-houses and "Skóg" (forest) extending eastward to its very base.

The next feature was the Önundarfjörð (Önundr's firth), whose tenants are famed for wearing the longest beards on the island. The Súgandafjörð is distinguished by its deposits of Surtarbrand or lignite, which the people throughout this part of Iceland declare to be found on the headlands, not where we might expect it, in the bays. Fine specimens were sent to England last year (1871), and it is believed that a foreign company will take the semi-mineral in hand.

We were now approaching our third station, and shortly after mid-day we turned "Jón's" head east. Ísafjarðardjúp,² the deep of the ice-firth, and the largest of the north-western inlets is so called because when first sighted by Flóki it was filled with polar icebergs,³ merits the terminal, as no bottom can be found at 300

¹ Dýr is *Óþyr*, their, deer, and deer, in Iceland especially applied to the fox, being the only insular beast of prey (Cleasby).

² According to some local authorities, Ísafjörð is the mouth of the Ísafjarðardjúp. Mr Shepherd (p. 92) lays down that the bay-head and the town are called Ísafjörð, whilst Ísafjarðardjúp is the name of the whole.

³ Ísa being the genitive plural of Íss, ice. See page 5, "The Thousandth Anniversary of the Norwegian Settlement of Iceland," by Jón A. Hjaltalín, Reykjavík, 1874: the *Standard* (August 25, 1874) confounds this author with Dr Hjaltalín, "by far the greatest and most learned Icelander of the day." Some have erroneously derived it from Ísa or Ýsa, a coal-fish or haddock, which is here plentiful: this *Gadus carbonarius* is known to western Scotland by many names. They are "cuddies" when six to eight inches long, excellent eating in October; when herring-

fathoms, and it gives a name to the northernmost Sýsla. There is a curious contrast between the shores of the great bay—the northern side, Snæfjallaströnd, is lee land, whose snowy heights are subtended by a smooth, straight shore-line, whilst the southern is jagged and hacked by currents, flocs, and the violent north-wester. To starboard before we round the corner crouches the fair, green vale of Skálavík (hall bay), dotted with farms, and flanked eastwards by Stigahlíð, the “stair-ledge” or slope, whose reddish trap produces abundant Surtarbrand. Opposite the upper jaw of the mighty gape is Grænahlíð, streaked with thin verdure, and striped, despite southerly frontage, by snow descending to the sea. The central projection of Snæfjallaströnd, representing the tongue of the gape, is tipped by Bjarnagnúpr, the bear’s knoll, where the “old man with the fur coat” has often landed from his floating home, weak and famished, a ready victim to gun, club, and scythe. He is always the white ice-bear; the other two kinds known in Norway are strangers to Iceland.¹

A green bulge, an *impasse* between two mighty blocks, with a little stream in the middle, shows us the farms of Hóll—fishing-boats on the shore, and houses built upon tumuli, to guard against the periodical ragings of the brook. These settlements upon the western and northern shores assume somewhat the aspect of villages; in the interior, however, here as elsewhere, they diminish to scattered farms. The path from Hóll to Eyri is a noted “ú-færa:” one would hardly suspect danger unless warned; yet during the course of the day we saw a land, or rather a stone, slip from the loose trap cliffs. Where the strand is barred by rocks the line runs up and down the *débris*; in

sized they become “saythes,” somewhat coarse of flesh; and when full-grown “stane-lochs,” almost unfit for food.

¹ The *Ursus albus maritimus* or *Thalarctos* is called Bamsin and the female Bingsen: it is well known to be carnivorous, a “lahhám,” as the peasants of the Libanus term their small brown bears (*U. Syriacus*): moreover, it rises upon its haunches to scalp the huntsman, like the Himalayan bear (*U. Thibeticus*). The two others common in Norway are the Hesta-biörn or horse-bear (the common brown *U. Arctos*), and the Myre or small bear (possibly a variety of the former, like the black bear of Europe). The latter is valued for its hams, as the paws of the great grizzly (*U. ferax*), the most savage of its kind, are prized in the Western States of North America.

other parts it lies upon the sands, and here the traveller pricks as fast as he can.

Presently we turned south into the Skutilsfjörð ("shuttle," *i.e.*, harpoon, firth), where the scenery became even more impressive. The bottom of the bay was split, and the two forks, separated by a central buttress, formed amphitheatres hoar with snow above and each traversed by its own runnel. The breadth of the mouth may be ten miles, and the twin cliffs of trap rose at least 1200 feet. Many streamlets dashed and coursed down the slopes; here and there they started from the ground, these features are always pointed out as curiosities, but they simply result from the drainage of the *couloirs* and snow wreaths disappearing under the rocky ground and reappearing, perhaps, hundreds of feet below. We hugged the eastern side of the picturesque firth, Arnanes, a flat tongue grown over with farms, in order to avoid a fronting spit or shallow. The continuity of the wall was broken by a deep "corrie," or curved scarp, at whose mouth stood homesteads with scattered sheep, apparently waited upon by ravens. We then rounded a shallow that continues the sandspit of Eyri, and the clear way was hardly the length of our steamer. There is a pilot for this bay, but Hr Wydholm is "very stiff and proud," demanding, for half-an-hour's work, the unconscionable sum of ten rixdollars specie. So we did very well without him; likewise did a plucky little Norwegian cutter which followed "Jón" into the inner harbour. Fortunately the weather was fine: in last May Captain Müller had been delayed two days by the snow.

Eyri, in the maps, is popularly known as Ísafjörð. The former term,¹ throughout the island, means a sandspit, in places equivalent to the Greek "Zankle:" it is applied to the sickle-like banks of sand and shingle, which we first noticed from the Esja summit; the effect of confluence, influent meeting effluent. Here the line sets off from the western shore and bends first to the south-west, and then to the south-east, in the shape of an

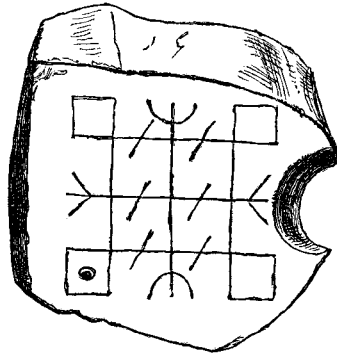
¹ It must not be confounded, as some travellers have done, with Eyra, an ear. Eyri is the modern form of Eyrr, the Shetland Urie, and the Swedish Ör: *e.g.*, Helsing-ör, our Elsinore. Eyr-byggjar are men who build in Eyris; and, hence, the "Eyrbyggja Saga." The feature, like the Holmr, was used for battle-plains; thus Ganga út á eyri, is to fight a duel (Cleasby).

inverted letter S, forming a close dock, seven fathoms deep, along shore: as we glided in, a perfect calm succeeded the cold and violent *rafales* outside. This Eyri may be 600 feet broad at the base; here are a few scattered hovels, a neglected graveyard and a wooden church and steeple, with the general look of a card-house. About the middle it thickens to a quarter of a mile, forming the body of the settlement, a bit of enclosed meadow-land and a rough square, the houses being independently oriented, but mostly facing north. The top fines off into a spit sixty feet across, and prolonged under water: it carries a single establishment of five sheds, an incipient windmill, and tarpaulin-covered heaps of dried cod—we shall take in a small cargo of heads for Grafarós. The streets are made simply by removing the stones; we count five flags, all Danish; the old houses are faded black and white, the new pink, grey, and yellow, and there are three roofs of very bright pigs-blood, such as delight the Brazilian eye. A single landing-place and several abortive attempts at piers show private not public spirit. The settlement has been sketched by Mr Shepherd, whose frontispiece makes the Eyri far too narrow; also our view of the same was by no means so romantic and startling in colour as his.

After feeding we ascended the eastern precipice, which shows two distinct steps and a broken coping. The new comer would expect a dry walk over the grass growing below the shunt of rubbish; we now know it to be a quaking bog, the effect of retentive fibrous roots, even upon the rapid slope. Murmuring runnels, which from the shore appear mere threads, become deep gullies, garnished on either side with rocks and boulders, shot down from the perpendicular cliffs. The weather was that of August in England, fostering a pretty little vegetation, yet we soon reached a deep patch of snow. The drainage flows into the Fjörð, and the sea-water tasted almost sweet.

After a bird's-eye view of the settlement we returned on board. In all these places flaps of whale and porpoise meat hung out to dry, and huge vats and tuns, reeking with high shark-liver, diffuse an odour distinctly the reverse of spicy and Sabæan. The deck was crowded with open-mouthed sight-seers, who walked round us as if we had been lately floated over from

Greenland, and who, between cigar-puffs, loudly asked one another, "What *can* they be?" In the evening they will be "fou" and fond. On our return we were fortunate enough to meet Hr Thorwaldr Jónsson, son of our friend Hr Guðmundsson of Reykjavik: he speaks French, as *Médecin d'Ísafjörð* on his card shows, and he kindly gave me an amulet of Surtarbrand, engraved with "runes"—the form is not found in Baring-Gould's collection.



THE AMULET.

But neither he, "nor any other man," could enlighten my curiosity as to the island which Pontanus, or rather his mapper, Georgius Carolus Flandrus, places off the north-west coast. All being mere drongs and skerries, I was forced to the conclusion that "Insula Gouberman" is only the Gunnbjörn Skerries of Ivar Bardsen forced hundreds of miles to the east.

It was nearly ten P.M. when we steamed out of the Ísafjörð. We passed a number of shallow-branched firths, combining to form the Jökulfirðir, which well merits its name; at the bottom to the south-east rise the roots and outliers of the Dránga snow-dome. After some two hours' steaming we turned to the east and entered the "Cronian Sea," where old Saturn, planter of the vine, lies sleeping in his pumice cave. There was a solemn charm in this end of the world of men. An arch of golden gleam in the west threw a slanting light upon the noble bluff of Kögr (the "dogger"); and the giant range of trap bluffs which faces the Pole, forms

a worthy barrier to the icy ocean. The profile showed a thick ribbed curtain, topped by *chevaux de frise*, sharp-topped pyramids, sheer to the fore, as we might expect on a shore exposed to the whole fury of the north; the front view separated the three shells of cliff by hollows, with a dreary attempt at verdure. The Horn¹ was signed by a knob or chimney below the highest point; all present who knew the two, preferred Icelandic Cap Nord to the Nord Cap of Norway, though the latter lies far nearer to the Pole (N. lat. 71° 10' 15"). As we gazed our full, a solid wall of sea-fog, which to the north wore the semblance of an island, and to the south-west mimicked an ice-floe, rose from the horizon and gradually wrapped in its grey pall the golden glories that clothed the splendid cliffs. The last look at the three waving heads sent me berth-wards to dream of the limestone billows of Syrian Blúdán and Marmarún.

July 1.

The culminating point of excitement had now passed. We were tired with craning necks backwards, and in the chill and cheerless weather of the next morning we cast languid glances at the coast. But for "earth's period," *the* Horn, we might have admired the tall and bizarre form of Kaldbakshorn (cold hill-peak) and the remarkable pyramid of Sandfell. We were now running down the great gulf Húnaflói, bounded west by the Stranda Sýsla and east by the long tongue of Húnavatn's Sýsla, which separates it from the Skagafjörð (naze firth). The shores are garnished with a multitude of unimportant islands, and cut with secondary firths and creeks, the western side being again much more torn and frayed than the eastern shore. At two P.M. we entered the narrow Hrutafjörð (ram's firth); the dreary low-banked sea-arm looked like the estuary of a mighty stream, yet it conducts only the mildest of streamlets draining the smallest of lakes. "Go to Hrutafjarðarháls!" I may mention, is here equivalent to sending a man to Jericho or—Halifax. The bluff eastern point rejoices in the short and handy name of Bálka-

¹ This common name for such features is one of the Semitic words (Arab. Karn) which has been naturalised in Aryan speech through *Képas* and Cornu. Another is "Botn," flat or low land, *e.g.*, Gulf of Bothnia, in Arab. Batn.

staðaneshöfði, head of the naze of Bálkastaðir or Balk- (bulk-head) stead.¹ On the western of the two dwarf holms, Hrútey, appeared a cross, warning us to respect the eider-duck; both belong to the Sýslumaðr, whose Bær is on the left bank opposite. From a little hollow in the right bank curled the thin blue vapour of the Reykir (hot springs), and south of it stood Thóroddstaðir, a house with five gables and large tún.

After eighteen hours' run we anchored in rapidly shoaling water, over a bottom of deep mud outlying black sand, at Borðeyri, the table-spit, so called because that article of furniture was found there: a miniature copy of our last Eyri, based upon the western side, projects a few yards to the south-east. Three plank-pierlets without caissons and removed, as usual, in winter, outlie two establishments; in Messrs Shepherd's (1862) and Baring-Gould's day (1863) there was only a single shed, deserted when the season ends. One is salmon-coloured, the other yellow-white; one flies a flag; both are double-storied, and both are surrounded by peat-houses. The scene is wonderfully animated; this is the opening of the "Handelstid," or annual fair, attended by all the country-side; one long day's ride brings men from Stykkishólm, and in forty-eight hours they can make Grafarós. Strings of ponies, somewhat better grown than usual, are descending the hills, and groups of farmers and peasants flock in to the two comptoirs, buying and selling for the year. They exchange rough greetings, stand on the shore staring with intense inquisitiveness, and scramble, like climbing bears, over the laddered sides of the two Danish brigantines, which have affected the place during the last nine years. This, with a considerable amount of hard drinking and loud hymn-singing at night, form the only visible humours of the *foire* in the far north. The stations of the Spekulants or shop-ships, and their length of stay,

¹ Staðr (plur. Staðir), our "stead," secondarily means a church establishment, see, convent, chapel, and so forth. The "church contest," or struggle, between the clergy and laity about the ownership and administration of churches and glebes, which began at the end of the thirteenth century, and was partially settled by the agreement of A. D. 1296, has diffused this word far and wide through Iceland. Thus the heathen Fell, Hraun, Hóll, and Melr became Staðar-fell, Staðar-hraun, Staðar-hóll, and Mell-Staðar. On the other hand, the plural Staðir is frequent in local names of the pagan time, as Höskulds-Staðir, Alreks-Staðir, etc. (Cleasby).

are fixed by law, and all are Danes, the Icelanders have too little spirit for this work: the primitive system reminded me of the banyans at Berberah and of the trade-boats on the Amazonas. The holds are fitted up like shops, with desk and counter; the stores supply all the wants of a primitive people—dry-goods, clothes and caps, saddlery, wool-carders, querns of basalt, and spinning-wheels; sugar, grain, tobacco, and, especially, the rye-spirits, with which all purchasers, male and female, are copiously drenched. These, and a multitude of notions, are exchanged for wool and eider-down, dried-meat, salt-fish, and a few fox-skins.

We landed, for nearer inspection, in a dingy propelled by a single scull aft; a common style called *Rempe Ruðir*, which the little Reverend, who has a queer manner of “wut,” translates “*progressio podiciana*.” On shore the violent flaws and *grains* were stilled, and the sun shone with a genial warmth. The *Sýslumaðr*, in gold-laced cap and uniform buttons, made *acte de presence*, to keep order. The peasant women wore white headkerchiefs over the usual black fez, and instead of shawls short fichus, which reached only to the waist; they managed their baggy petticoats with some art as they swarmed over the gunwale of the store ships; and their side-saddles had unusually elaborate foot-boards, with backs of worked brass. Dry meat hung in plenty, but it was very like donkey, or the roast-beef of Sierra Leone. Heaps of wool lay upon the ground for sale; it is a very poor article, half-rotten before it is plucked off: after “gathering,” it is scalded, or rather boiled, in caldrons, placed in frames, rinsed with cold water, and dried on stones or turf. The owners asked one shilling per pound, and consulted us about the chance of making money at Hull: a more likely spec. here would be to import wool.

We then strolled up country, beginning with the bare *Melbakki*, so common along the shores of these northern *Fjörðs*, a low dorsum of earth and stone, from which the snow has only just melted; too steep for turf, and kept bare by the furious winds. Often, as in this case, it is the bank of an old torrent-bed. To the north-west the land again seemed to offer a fair walk: “old Experience” had taught us that we shall have to bog-trot from

tussock to tussock, to paddle through ankle-deep waters, and to cross turf-fens, which look solid and yet admit you to the calf. The drainage of these hills would supply a little river, but, as usual, it sinks, or rather lies. The turbaries, so deadly to the growth of trees, were judged by the French expedition the only safe stations for observations of magnetism; elsewhere the cellular dolerite, containing oxydulated titaniferous iron, deflected the needle 1° to $1^{\circ} 30'$. Upon the slope we found what appeared to be a Lögberg (law-mount), artificially raised above the swamp; partly revetted on the top with turf, which had been stripped off for use, and encircled by a remnant of similar vallum. Ice appeared at the foot of the basaltic rises.

The summit, denoted by the usual "Varðas," commanded the nearer Heiði, a desolate land, a scatter of moor-ponds and bogs, everywhere alternating with heaps and swathes of stone, and with dark mounds wearing cravats of *névél*. To the south-south-east was a grand view of amphitheatral snow mountains; the western flank rose in a shallow dome of purest white: we judged it to be the Eyriksjökull, whose romantic and, of course, murderous tale has often been told; while to the east Balljökull (hard Jökull?), a lower elevation, showed dark-blue rocks, which had worn their winter garb to strips. These outliers were backed by a radiant semicircle of peaks, which, in the slanting sun, assumed splendid rainbow hues.

July 2.

The "Jón" made a long halt at Borðeyri; she found only two shore-boats for discharging goods, and these were dingies towed by a rope: it was past two P.M. before we steamed out into the great Húnaflói. "Skyey influences" appear to be peculiarly capricious on the shores of the Cronian Sea. Morning; cloudy, with southerly wind, and clear with north-easter, suggesting a "lady's passage." Noon; thermometer in sun 81° (F.), in shade 60° , although snow is upon the shore; with the sea, as at Granton, in alternate stripes of deep-blue and silvery azure. Afternoon; a Mediterranean, plus the normal long roll, and a biting breath from the north; and, later still, the sea-fog and a return of warmth under the protection of Skagafjörð. At five

P.M. we had turned the point Vatnsnes,¹ a long low projection from a high talus of stepped rock: hence we sighted the southern Jökull towering above the lowlands and inlets of the shore—mighty masses of solid cloud, with true cloud floating above and around them. To the north-west, over the teeth and pyramids which jagged the shore of the Húnaflói, rose the Dránga Jökull, apparently supporting the firmament, Atlas-like, upon its vaulted head.

We then doubled at a respectful distance the long peninsula of Húnavatn, which, hilly and broken at the root, thins out into a cliffy point, and projects near Rifsnes the dangerous reefs of Skalli (the scald or bald head). Two French schooners from Dunquerque sailed leisurely by, with their rigging a mass of drying fish: after safe return these cod-fishers will pilgrimage to Nôtre Dame des Dunes. The behaviour of the ice-fog gave us some concern, we were now in N. lat. $66^{\circ} 10'$, and this was the only night that would offer a chance of enjoying the midnight sun. The mist came up in a white transparent line raised by the abnormal heat, and at times a low, solid bank, precisely imitating floe-ice in all points except being stationary, threatened, as is its wont when the light of day lies low, to invade the land.

As time neared the noon of night, the burnished circle, utterly shorn of its beams, seemed almost to stand still: when suspended about a diameter and a half above the ocean, it changed to a long oval, to a mushroom with distinct columella, to half a sovereign, and finally to a fragment of golden egg, which seemed to indent the blue horizon. In the latter phase it held its own till the bell struck, when the light of night began to rise once more. The spectacle was a lecture upon such Eddaic and Skáldic phrases and periphrases for the precious metal, as the Eld Særar, "ocean or water flame;" the "sea's bright beams," or "lowe of the waves;" the "swanbath's rays;" the "ore of the Rhine" (any river); and the "resplendent radiance of the flood."

This was our farthest northern point—

"Sistimus hic tandem, nobis ubi deficit orbis."

¹ So the point was called by all on board; the map gives Krossanes (cross naze).

We failed to sight inhospitable little Grímsey, which employs its spare hours in adorning porridge-pots with the Runic knot or snake.

When abreast of long, high, and broken Málmeý (Malm or sand isle), bluff at both ends, we had fairly entered the Skagafjörð, which my classical friend translates "*Sinus qui eminet*;" he is less happy with Grafarós, *ostium sepulcræ*; Gröf, as in "Grafar-lækr," here means the deeply-encased bed of a stream. A little farther we left to starboard a triad of islands classical in Iceland story. The northern rock-needle bears the common name Karl (old man), whose hip, the Kerfíng (carline), to the south, suggests a ship under sail. The middle, and by far the largest, feature is Dráney, an area of 800 square yards, rising steep-to some 600 feet high, and inaccessible except on the south, where the cliff breaks, and where adventurous cragsmen swarm up to rob birds' nests. It is one of the richest of its kind, and it is known far and wide as the last refuge of Grettir Ásmundarson, popularly "Grettir the Strong." The millennial lithograph simply says of this strong man, "outlaw for twenty years, and died in this capacity." While telling the tale of his well-merited death, the Icelandic speaker's eyes, to my wonder and confusion, filled with tears: I could not but think of my poor friend James Hunt, who died of a broken heart because "Anthropology" was not welcomed by the "British Ass." The "Oxonian" abridges the prodigious long yarn spun by the Gretla, and shows the "William Wallace of Iceland," as the outlaw is called by the admirers of muscular un-Christianity, to have been, *pace* Mr Morris, even for Iceland, a superior ruffian. With few exceptions, we may say the same of the Saga heroes generally, and it is ethnologically interesting to contrast their excessive Scandinavian destructiveness with the Ishmaelitic turn of the Bedawin—the reader has only to glance at the pages of *Antar*, translated by Terry Hamilton. But the Arab, though essentially a thief and a murderer, boasting that blood is man's only dye, and that battle is to him like manna and quails, has a soft corner in his heart which the Iceland poet lacked; he was chivalrous as a knight-errant in his treatment of women; he was great upon the subject of platonic love, whose place in the hyperborean

north is poorly occupied by friendship, however tender and true; his poetry was inspired by the sun, not by eternal ice and snow; and, like all the peoples of the glowing south, his fiery savagery is gloomed by a peculiar and classic shade of sadness. Witness this address of the dying Bedawi to his fellow-clansmen :

“ O bear away my bones when the camel bears his load,
 And bury me beside you, if buried I must be ;
 And bury not my bones 'neath the burden of the vine,
 But high upon the hill, to be sighted and to see ;

“ And call aloud your names as you pass along my grave,
 For haply shall the voice of you revive the bones of me.
 I have fasted with my friends during life and in my death ;
 I will feast with you the day when the meeting shall be free.”

We may compare the sentiment with that of the Roman epitaph,

“ Hic propter viam positus
 Ut dicant prætereuntes
 Lolli, vale !”

And one might quote by the score such inscriptions as—

“ Have, anima dulcis !”

which breathe only the most tender melancholy. This sentiment, apparently unknown to the rugged and realistic soul of the north, is felt deepest in the brightest climates, for instance, amongst the Hindús, and generally the races which inhabit the “ Lands of the Sun.” Nor amongst the Arabs do we find the abominable heroines of Scandinavia; “ the grimmest and hardest hearted of all women,” adulteresses all and murderesses, justifying the Norsk proverb, “ Woman’s counsel is ever cold (cruel).”

The eastern shore of the Naze Firth then showed Thórðarhöfði, a majestic headland of black lava, coiled and writhed, whose central hollows are striped with yellow clay washed from above; whose upper crags lodge the eagle and his brood, and whose base is caverned by the ceaseless onslaughts of the waves. At first it seems an island, backed by its lakelet, the Höfðarvatn, but it is connected with its mainland by strips of natural causeway to the north and south, not unlike Etruscan Orbetello. Wild strawberries are said to flourish in the well-sheltered hollows.

From about Grafarós it wears the aspect of a couchant lion, and doubtless it was of old, like Helgafell, a Holy Hill. The Thórðr who gave it a name was an "illuster and vailzeand compiou" of Irish blood and fifth in descent from Ragnar Loðbrok (hairy-breeks),¹ one of the most unpleasantly truculent persons in Scandinavian myth. His epicedium or death-song, of course composed for and not by him, the only refrain of whose twenty-nine stanzas is—

"We hewed with the hanger" (Hiuggom ver með hiaurvi—*Pugnāvimus ensibus*),

very adequately represents his sentiments and his career: it reads as if it had been inspired by the Destroying Angel. The sooner this style of literature, which deals in every manner of —cide from parricide to vulpecide, becomes obsolete in Iceland the better. Imagine a decent, respectable Protestant paterfamilias, by way of whiling away the long winter evenings, reading out these revolting and remorseless horrors to his wife and daughters: I should feel as if treated to the Curse of Ernulphus.

The next feature was Hofsó, a scattered settlement, with its chapel, first a pagan temple and then a Catholic church; it is marked by a hill rising bluff above the Unadalr ("Wone" or dwell vale), a little stream which accounts for the term "oyce." A mile or so farther south lies Grafarós, and here we anchored, after a pleasant cruise of fourteen hours from Borðeyri. This comptoir, chosen by Mr Henderson of Glasgow, is very badly placed: the norther raises a surf which can make landing impossible for a fortnight, and, as we could see, the south wind at once breaks the Skagafjörð into dangerous waves. Surely safe ground could be found under the lee of the grand Thórðar-head.

¹ The Loðbrokar Kviða (Loðbrog's Quoth) or Krákumál, so called from the "mythical lady" Kraka, was translated (1782) by the Rev. James Johnstone, A. M., chaplain to the British Embassy at Copenhagen. It is given by Henderson (ii. 345-352), who believes—*O sancta simplicitas!*—that the ruffian, who probably never existed, himself composed the "warlike and ferocious song." The word Kviða, or lay, derives from Kveðja, cognate with the English "quote" and "quoth."

July 3.

Apparently the rule in Iceland is, that a fine day brings foul weather, and July 3 was no exception. As we rose, a solid bank of rain stood high in the north, and presently the Storm-King rode forth, beating down the white heads of the angry billows. It was Ahriman waging eternal war with Hormuzd; the battle of Osiris and Typhon; the war of Baldur and Loki. In the course of the day, the gale forged round almost to the south, and the alternations of mist, drizzle, and bright sunshine formed an Ossianic framing highly appropriate to the picture: like the Scottish Highlands, it would have looked ridiculously out of place under an Italian sky.

The Skagafjörð is held to be one of the most picturesque, as well as fertile and populous, districts in Iceland, wanting only the "hair of the earth animal"—wood. The firth, a riverine sea-arm, ten miles broad, is the embouchure of that formidable stream the Jökulsá Vestri (western), which, like the Blandá or Blandwater, drains the central Hofsjökull—the southern face, Arnarfellsjökull, discharging the much more important Thjórsá. Flowing from south to north, before feeding the bay, it bifurcates, forming a delta known as Hegranes (Hern-naze) Island, and famed for beauty. On both sides, rugged and precipitous shores are divided by ravines and valleys which, after an hour's rain, pour turbid yellow streams into the dull-green receptacle. The southern part of the western bank is subtended by the Tindastóll (peak-host), a well-known name: older travellers talk of "precious stones, probably opals," being found in abundance among its ravines, of onyx, zeolite, and chalcedony, and of "caves containing curious crystals." To the north and south, the wall-coping is broken and jagged; the middle length shows straight and regular lines, with numerous strata symmetrically piled.

The eastern shore of Skagafjörð, near the anchorage-ground, is of black sand and shingle, with columnar basalt in places, and capped by a long bare "Melbakki" some seventy feet high: its background rises in detached hills and lines of bluff, counterparts of the Tindastóll in miniature, and copiously streaked with snow. The regular steps and stratified lines here dip to the north.

The bottom of the firth disclosed a grand landscape of sky.

Now a glint of sunshine settled upon snowy top and glaucous slope, then a white mist robed and capped the shadowy mountains, catching the reflection of Bifrost, the bridge of the gods, a fragment of gaudy rainbow. Anon a span of pale-blue firmament contrasted with the mackerels' backs and mares' tails to windward; whilst to leeward the dark curtain of purple cloud, hanging in rugged edges over the red and black hills, made the distances dim, dimmer, and dimmest. The inevitable accompaniments of this feature were the ghostly forms of pale birds fighting with the wind; the *ámes perdues* which attract the voyager's eye on the beautiful Bosphorus.

We landed to inspect the "one-horse" settlement of Grafarós, which consists of a small temporary landing-place, a tarred store, sundry stone-and-peat huts, and a double-storied red house flying a flag; a few farms are scattered about inland, as well as on the shore. A single schooner lay at anchor. North of the compartment, and forming a bay in the bare raised bank, is the "ostium" of the Deildardalur (dole-dale)¹ river, a tenth-class Icelandic stream, which, despite its low degree, can look first-rate in violence. There is a ford near the settlement, but elsewhere the water courses over a succession of steps and ledges, which would deter anything but that wild horse who is known to swim the wilder flood. By this time we had seen enough of "Hofs," and we contented ourselves with strolling up the warm and genial valley, a bed of violets.

Grafarós was formerly, and is still at times, frequented by English smacks in search of whale and seal oil. These cockleshells, manned by four and five men, the "little friggits" of our ancestors, not larger than the Icelandic "sharker," work their course by dead reckoning and often come to grief. It is the terminus of our voyage, and we could only regret that the "Jón" had not orders to make a circuit of the island—regrets tempered, however, by the thought that we had seen by far the fiercer and the more interesting half. No better or easier way than this to form a general idea of the formation; it requires only supplementing by a few cross-cuts through the interior.

¹ This common term is explained in Chap. XIII.

The students had all left us, and here our now pleasant party broke up. The bishop's daughter and her two friends had the choice of riding some twenty miles round the Skagafjörð head, or of crossing it by boat, an easy process which, however, did not seem to have charms for them. We bade affectionate farewell to Síra Guttormr, whose beat is from Rípr (the crag) in Helganes to Keta near the north-eastern extremity of the Húnavatn peninsula—he seems to look upon it as a mean place. The reverend has no pay, properly so called, and his "living" is expressed by the contributions of his parishioners: truly a man must have a vocation for such a life!

Late in the afternoon the "Jón" turned his head northwards, and on July 6 steamed into Reykjavik harbour. We shook hands with our excellent captain, and heartily wished him every success, and bade an adieu which was destined to be an *au revoir*.

CHAPTER XI.

TO HEKLA AND THE GEYSIR IN HAUKADALR.¹

THIS is indeed a Cockney trip, but a visit to Iceland without it would be much like Dante's *Commedia* with the *Inferno* omitted.

SECTION I.—TO KRÍSUVÍK, THE WESTERN SULPHUR-FIELD.

Mr Chapman and I determined to secure comparative novelty by a "hysteron proteron," beginning with the "Cope" and ending with the Gusher and the Thingplain Lake.

We hastily collected the small quantity of *harnöys de gueule* absolutely required—man eats less when travelling, and more when voyaging. Our stores represented a ham, one serving for one month per month; a couple of sausages, to be avoided when thirst is threatened; four loaves of rye-bread (each 6 lbs. = one man per week); snuff, cigars, and pigtail for friendship; small change for £5; and, lastly, two mighty kegs of schnapps, the load of one-twelfth our carriage. The *Fylgju-maðr* (leader) was Pauld (Páll) Eyúlfsson, before mentioned as the "French guide;" our *Lestamaðr* ("last" driver) was "Smalls,"

¹ I know no reason why we should conserve such veteran blunders as "Hecla" and "Geyser." The latter has already been explained. The former, whose full form is *Heklu-fjall*, derives from *Hekla* (akin to *Hökull*, a priest's cope), meaning a cowed or hooded frock, knitted of various colours, and applied to the "Vesuvius of the North," from its cap and body vest of snow. Icelanders usually translate it a chasuble, because its rounded black shoulders bear stripes of white, supposed to resemble the cross carried to Calvary.

alias Sigurbjörn Björnsson, fourteen years old, and four feet nothing: we are careful to see that they do not monopolise the very best of the eight riding-horses. We ourselves at once become Martednn (Marteinn) Kaupmansson and Ríkarður Burtonsson; and thus having borrowed as much local colouring as possible, we leave, nothing loath, the hard-soft bosom of semi-civilisation.

Spurring hotly over ground now familiar (July 8, 1872), we delayed a few minutes at Foss-vogr to inspect the "sedimentary and sandstone stratifications," found so interesting by older travellers in a purely volcanic island. They suggested, in early times, to daring spirits that granite might not be Plutonic, and they made the devil-may-care doubt even the eruptive origin of basalt. The travels of Von Waltershausen have settled Foss-vogr and its Palagonite.

There was nothing to keep us at Hafnafjörð, after a longing glance at the "Jón Sigurðsson," which lay in harbour. A man happened to mention that the one herd of reindeer still haunting this part of the island had been lately seen; it was not our fate to sight them.

At four P.M. we inspected the Kaldá—an exceptional feature. Rising from a little tarn in the northern flank of the lone hill Helgafell, it winds westward down a shapely river-valley. Half of the stream suddenly disappears in a hollow of the right bank, a little below the farm crossed by the high road or path, and the remainder follows suit about two miles farther down. The feature suggested a limitation of the accepted dictum, "Calcareous rocks are almost the only ones in which great caverns and long winding passages are found." This is true of water-made passages, where carbonic acid has dissolved the limestone; the cooling of the upper lava crust has the same effect in Plutonic formations. The course of the Kaldá is very badly traced in the great map; nor does the latter show where the lower stream reappears.

The next feature of importance was the Lángahlíð, a stepped and buttressed block of trap like Esja, the Akrafjall, and the Skarðsheiði. A tolerably regular triangle to the south-west, it acts bastion to the great lava-plateau which extends from the

Thingvallavatn, and our morrow's ride will subtend its southern flank. Immediately below the western slopes, which are regular, lies the Kleifavatn (cliff-water),¹ a lake of intensely gloomy shore. The dark waters, ending south in a swamp, were lashed by the wind into mimic waves, and the shores were grisly masses, standing and fallen, of dark Palagonite, a conglomerate of small and large breccia, easily washed into gaps and clefts, arches and caverns. I could not but remember the Lake of Hums so similar, and yet so different, under the glowing Syrian sky; the picturesque contrasts of cultivation and desert contrasting with the lava-bound water, and the memory-haunted stream which once found a mouth at Rome—

“ In Tiberim defluxit Orontes.”

Cutting across a hill-brow we sighted a tall, white plume whose fibrils, causing many a cough, suggested the end of this day's march. The Icelandic traveller who has not read “The Great Sulphur Cure” of Dr Robert Pairman, often lands with the idea that inhaling sulphur-vapour is unwholesome, as the sulphuric acid and the sulphuretted hydrogen are decidedly unpleasant: he soon corrects the impression, finding the people of the two great brimstone centres exceptionally healthy. The Krísuvík diggings are upon a line of volcanic hills, running from north-north-east to south-south-west, and their irregular and tormented flanks contrast sharply with the monotonous Lángahlíð wall, rising opposite them. The “Ketill” (caldron) of Krísuvík, a huge “corrie,” whence the puffs come, lies high up: the four “Brennisteins Námur” are low upon the eastern flank, with the little blue pond, Grænavatn, farther to the south. The scene is that of solfataras generally, a distempered land of disordered cuticle, bright red, brass-yellow, slate-grey, pink, purple, pale green, brown-black, and leprous white; the water is milky and slimy, and even the dwarf willow and juniper cease to grow. “Exhalations of sulphurous acid, sulphuretted hydrogen, steam, and sulphur, burst in wild disorder from the hot ground.”²

¹ “Kleifar” is a local name in West Iceland, from Kleif, a ridge of cliffs or shelves in a mountain-side (Cleasby).

² Professor Tyndall (loc. cit.) tells us that the “two first gases cannot exist

Martednn looked at Ríkarður, and *vice versa*; both had expected not a single block, a mere patch, but a sulphur region to be measured by many square miles.

We passed two huts, one of iron, the other of wood, with ore-heaps lying around them, and, scrambling through a bog, we rode up to the Krísvík chapel and the three-gabled farm-house of a little widow, Mrs Ingveldr Hannesdóttir. The district is tolerably populous; on the flanks of the various rises we counted five farms, fringed with haystacks, under sticks and turf, and white ponies dotted the long, swampy expanse, between the Krísvíkfell, a lump north of the chapel, the Arnarfjall to the south-east, capped by a spitz or bec, and the long slope leading to the Krísvíkurborg, the precipice some 200 feet tall which boldly faces the Deucalionian main. Unhappily Henderson's fine port is utterly absent; on the other hand, it is said that an easy line of tramway has been traced from the head of the Kleifavatn to Hafnafjörð.

The day's work surprised us, we had not yet realised the shortness of the distances travelled over. This mild march also has been called a "maniac ride"—"one of the wildest in the world." It is, however, only fair to own that we took the lake road, which is not laid down in the map, and that a few yards on either side of the way would offer as many difficulties as the horseman, however ambitious, could desire.

The steepleless chapel, which was not worse than that of Blúdán, had lost its key, and when the latter was found, the cabin proved a store and a lumber-room: clothes hung to the seats, milk stood to cream, and salt barrels cumbered the floor. A coffin, unfurnished, also stood on a beam: the idea underlying this premature precaution is that it prolongs the owner's life. Here the chapel is the "mountain-stove" of Norway, the Indian traveller's bungalow, and the Sind mosque in which Kafirs ate pork and drank wine. We pitched the tent near the byres, where broken bottles showed the habits of civilisation,

amicably together. In Iceland they wage incessant war, mutually decompose each other, and scatter their sulphur over the steaming fields. In this way the true solfataras of the island are formed." He derives the vapour of sulphur in nature from the action of heat upon certain sulphur compounds.

and slept despite the normal evil, cold feet caused by riding in a hard head-wind. The frequent weary halts to adjust pack-saddles should be utilised for restoring circulation. "*Les picotements sont plus incommodes que le froid lui-même,*" justly remarks M. Gaimard's expedition; and the French doctor advises the feet to be gradually warmed, or they will swell and cause *démangeaisons*, which prevent rest. Above all things avoid the Brazilian wrinkle, so valuable against damp in tropical climates—a glassful of spirits poured into the riding-boots. We must not leave the sulphur-field without some notice of the supply.

From Captain, now Commodore, Commerell's Reports, dated Leith, July 9, 1857, we learn that "the mines of Krisuvik were worked from 1723 to 1730, with considerable profit; during that year, all the sulphur consumed in Denmark and Norway and the Duchies was obtained from there, but one of the owners, who had also been the director in Iceland, dying, the mines were abandoned in consequence."

"In 1833, a merchant of Copenhagen, a Mr Kenidzen, obtained one large cargo of sulphur from Krisuvik; the affair was managed through an agent or factor, whose mismanagement was the principal cause of failure, since then only a few tons having been taken by the peasants for home use."

"The actual extent of the sulphur beds it is quite impossible to calculate; but from Krisuvik to Hengill (the mountain mass south-west of the Thingvallavatn) forty-seven have been discovered, the distance of the latter (former?) place to Havnefiord (Hafnafjörð) is from fourteen to fifteen miles, but the road is much more hilly. The deposit of sulphur I personally saw at Krisuvik must amount to many thousand tons; hitherto the sulphur taken away has been reproduced in two or three years, all the mines, or nearly all, being in a living state. Sulphur in a pure state, I have little doubt, could be supplied at Havnefiord for £1 per ton."

We are also told that "Dr Hjaltalín, an Icelander and mineralogist, who was ordered by the Danish Government to report on the sulphur beds, informed Captain Commerell that those at Krisuvik could be worked very easily, producing a large

amount of sulphur, and as a speculation would pay very well indeed."

I need not here enter into the history of the Krísuvík diggings since the date of Commander Commerell's report, or during Mr Bushby's concession. Suffice it to say that the concession has now been granted to Englishmen, and that Messrs Randall and Thorne, Curtis and Seymour, are the actual owners. Until 1873, I believe, nothing has been done in the working line—we shall hope to see more activity soon.

After expressing my surprise, as bound to do, at the smallness of the Krísuvík area, it is only fair to own that Commander Commerell's third paragraph, if correct, is most hopeful. The supply which is puffed away in air can be controlled by walls and roofs, upon which the vapour would be deposited, and thus the period of renewal would probably be reduced from two or three years to the same number of months. As regards Dr W. Lauder Lindsay's assertion that whilst crude Sicilian sulphur contains 80 to 90 per cent. of pure ore, and that of Krísuvík from 96·39 to 98·20, I am unable to pronounce judgment; but my suspicion is that severely picked specimens were used as averages.

Since my return from Iceland, Mr Charles W. Vincent, F.C.E., published in the *Journal of the Society of Arts* (January 17, 1873), a valuable paper "On the Sulphur Deposits of Krísuvík, Iceland." It is here reprinted with his express permission: the importance of the subject will excuse its length, and the reader will exercise his undoubted right of "skipping."

"The canton of Krísuvík, in the south-west corner of Iceland, has long attracted great interest, on account of its boiling mud caldrons, hot springs, and above all, its 'living' sulphur mines; these are all arranged in lines, evidently corresponding to the great volcanic diagonal line stretching from Cape Reykjanes to the Lake of Myvatn.¹ At the present time the greatest amount of volcanic activity is manifested at the southern end of this line.

¹ I have denied the existence of this diagonal.—R. F. B.

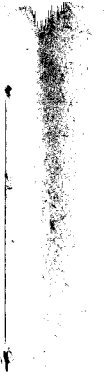
“In the last century it was the northern end of the volcanic diagonal, near about Myvatn, where, according to the Icelandic records, the kind of pseudo-volcanic action was most vigorous, by which the boiling springs are set in operation and the sulphur deposits are formed; but a violent eruption of the mud volcano Krabla, to a great extent buried the then active strata beneath enormous masses of volcanic mud and ashes, so that the energy has been probably transferred along the line southwards.¹

“The Krisuvik springs are in a valley beneath some high mountains. They are reached by a track, so narrow that there is no more than room to enable horses to pass along it—across the brink and along the side of a vast hollow, termed the ‘kettle.’ Following this rude track, the ‘Ketilstip,’ the summit of the range of hills, is reached which overlooks Krisuvik. In the midst of a green and extensive morass, interspersed with a few lakes, are caldrons of boiling mud, some of them fifteen feet in diameter, numberless jets of steam, and boiling mud issuing from the ground, in many instances to the height of six or eight feet. Sir George Mackenzie (who was accompanied by Sir Henry, then Doctor, Holland, now the President of the Royal Institution), in his justly-celebrated ‘Travels in Iceland, in 1810,’ gives a vivid word-picture of the scene. ‘It is impossible,’ he writes, ‘to convey adequate ideas of the wonders of its terrors. The sensation of a person, even of firm nerves, standing on a support which feebly sustains him, where literally fire and brimstone are in incessant action, having before his eyes tremendous proofs of what is going on beneath him, enveloped in thick vapours, his ears stunned with thundering noises—these can hardly be expressed in words, and can only be conceived by those who have experienced them.’²

“On the other side of the mountains subterranean heat is also manifested, and hot springs, accompanied by sulphur beds, are also found; but they have not been as thoroughly examined

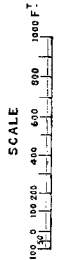
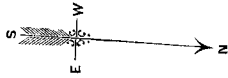
¹ The Journal shows how great this mistake is.—R. F. B.

² The description is prodigiously exaggerated.—R. F. B.



THE SHADED PART RE-
PRESENTS THE SULPHUR
BEDS SURROUNDING THE
ACTIVE SPRINGS

THE KRISUVIK MINES
OR
SULPHUR MOUNTAINS

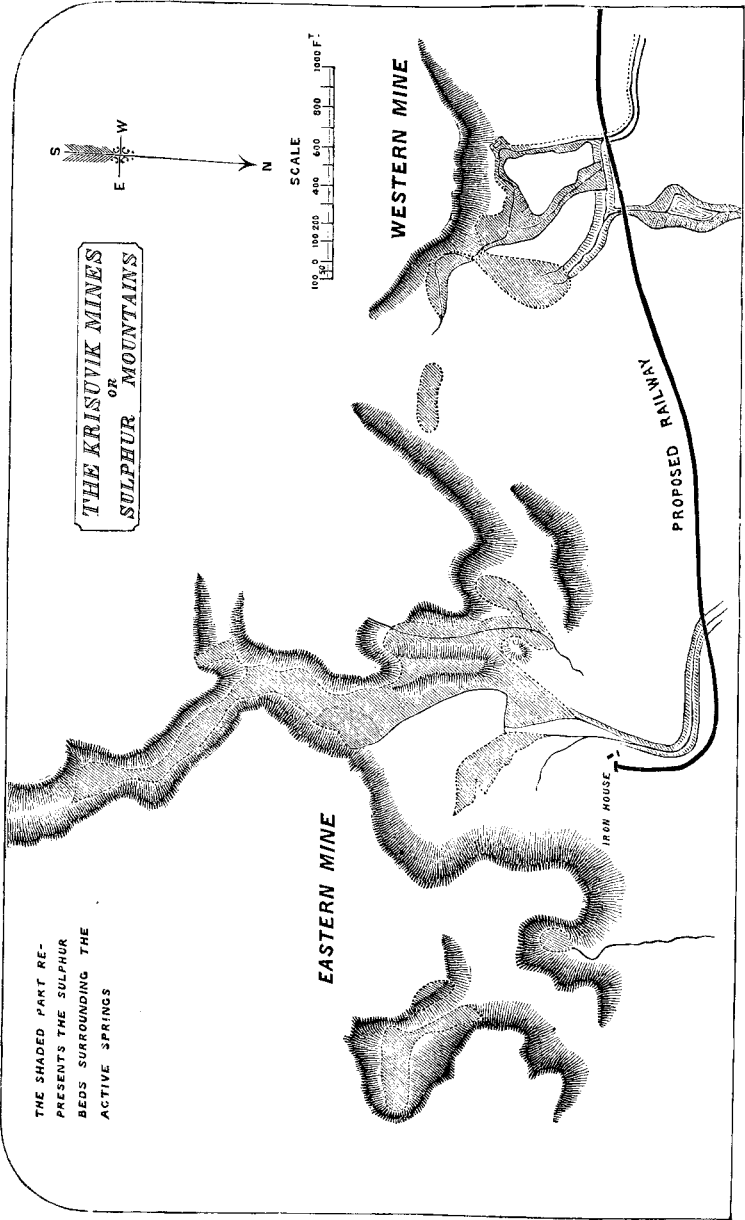


EASTERN MINE

WESTERN MINE

IRON HOUSE

PROPOSED RAILWAY



as those in the valley, and are represented as being less active.

“Mr Seymour, who has spent many months at Krisuvik, tells me that the sulphur beds on this side have been submerged by the clays washed down by the winter rains, and are, for the most part, now completely overgrown with grass. On digging beneath the surface, however, the sulphur earth is found to be only a short distance down, and on analysis the percentage of sulphur in one bed, 116 yards long, running up the side of the mountain, was discovered to range between 64 and 65·5. Here the earth was completely cold, and all further deposition of sulphur appeared to have ceased.

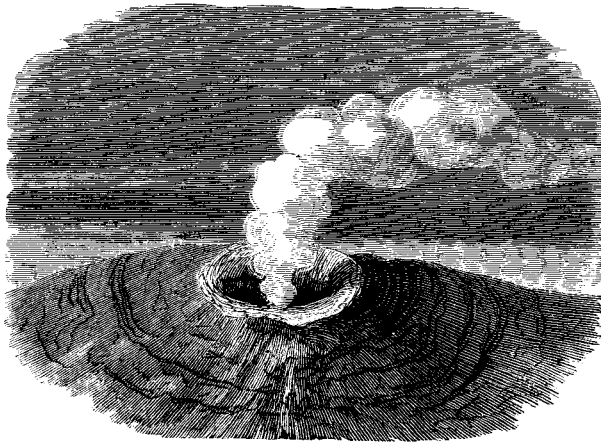
“In the valley itself the springs are not always visible at the surface, being so completely covered by the earth that it is only by piercing through the crust of indurated sulphur earth, that their presence is discovered. Sometimes the explorer is made unpleasantly aware of the insecure nature of his footing by falling through, and thus opening up a fresh thermal spring. The late Sir William Hooker, when visiting this place, in endeavouring to escape a sudden gust of strongly odorous vapour, jumped into a mass of semi-liquid hot earth and sulphur—and but for his presence of mind, in throwing himself flat upon the ground, would have sunk to a considerable depth; as it was, the difficulty of extricating himself was very considerable.

“The surface of the ground is covered in many places with a crust of two to three feet in depth of almost pure sulphur; and in the valley, where the steam jets are protected from the extreme violence of the wind, the sulphur is deposited tolerably evenly over the whole surface. If it were not for the ever-varying direction of the wind, the sulphur would, Captain Forbes is of opinion, be precipitated in regular banks, but it hardly ever falls for twenty-four hours in one direction, the wind capriciously distributing the shower in every direction.

“It has been suggested by those who wish to utilise the immense sulphur-producing power of this wonderful locality, that chambers should be erected (Sir George Mackenzie), or walls built up (Dr Perkins), by which means the force of the wind

being broken, the sulphur would be quietly floated to the ground, instead of being carried up the sides of the hills, and thus more widely distributed.

“ With little variation the general appearance of the ‘ solfataras ’ over the space of twenty-five miles along the volcanic diagonal is much alike: an elevation about two feet high and three feet in diameter, which is composed of a dark-bluish-black viscid clay, forms a complete circle round the mouth of a medium-sized spring. The water is sometimes quiescent, and sunk about two feet within the aperture; at other times it is ejected, with great hissing and roaring noise, to the height of from five to eight feet. At all times clouds of steam, strongly impregnated



THE SULPHUR SPRING.

with sulphuretted hydrogen and sulphurous acid gas, issue from the orifice, both of which, during an eruption of the water, are greatly augmented in quantity. From the dark coloured and elevated margin of the fountain the yellow crust of crystallised sulphur extends a great distance in every direction. Columns of steam ascend from numberless points in the whole district, which are thus impregnated; and thus it is that, apparently for ages past, sulphur has been gradually heaped up in this locality till there are actually hills, which, as far as they have yet been pierced, show sulphur earth to be their main con-

stituents. Hence they have acquired the name of the Sulphur Mountains.

“The soil is of different colours, but most generally white. It is, in the vicinity of the springs, a viscid earth, less plastic than clay, and more readily broken.

“When excavations are made into this earth, it is found to be composed of multitudinous layers, of different colours or shades of colour, each layer being quite distinctly divisible from those above and below it, though frequently no more than an inch or two in thickness.

“It is much to be regretted that the good example set by Olafsen and Povelsen of investigating the nature of the earth’s crust round about the solfataras, by piercing the soil, has not been more frequently carried out. In the summer of last year one of the suggestions which I made for the instruction of an expedition to this place, was that boring implements should be taken out and extensively used; but accident prevented the necessary appliances being forthcoming at the right time. I believe, however, that one of the chief features in the expedition which is to set out in March, will be the thorough examination, to as great a depth as practicable, of the strata in various parts of the Sulphur Valley.

“The spring chosen by Olafsen and Povelsen as the subject of their first experiment, was one which had made its appearance since the preceding winter, and which was just beginning to be surrounded by other mud springs and jets of steam. The ground was still covered with lovely verdure, and charming flowers were abundant, even at the very verge of the caldron of hideous hue and odour. A short distance from this opening they established their boring apparatus. The sequence of the layers was as follows :

“1. Three feet of reddish-brown earth, of a fatty consistence —of the ordinary temperature; at the bottom heat was perceptible to the touch.

“2. Two feet of a firmer kind of earth, nearly the same in colour as the first layer, unctuous to the touch.

“3. One foot of a lighter kind of soil.

“4. Five feet of a very fine earth of different colours, the first

two feet being veined red and yellow, with streaks of blue, green, red, and white intermingled. The lower portion of this earth was somewhat firmer than that which covered it. The heat of this thick bed was so great that the soil extracted by the auger could not be handled until it had been for some time exposed to the air.

“ 5. One foot of a compact greyish-blue earth.

“ 6. In tapping this bed, which was four feet nine inches in thickness, and consequently at a depth of about twelve feet, water was first met with. It was found by comparison that the level of the water in the boiling mud spring coincided at this time with that of the water thus discovered. The heat was now very great, and a constant hissing and bubbling could be heard as proceeding from the bottom of the hole which had been made.

“ 7. Nine inches of greyish-blue earth.

“ 8. One foot six inches of a similar unctuous earth, containing many small white stones. This was the hottest layer of any yet pierced; the buzzing, humming noise was now much louder than before.

“ 9. Three feet of the same kind of clay, but much harder and more compact; this layer was also full of small, round, white stones.

“ 10. Six inches of a violet tinged earth, very greasy to the touch. In this bed the heat sensibly diminished.

“ 11. One foot six inches of red and blue clay intermingled. The heat continued to diminish very fast.

“ 12. One foot of reddish-looking clay, the temperature remaining about the same.

“ 13. Six inches of yellow and red clay.

“ 14. One foot of a greenish coloured earth, much less coherent than the previous layers. Here the heat again began to increase.

“ 15. One foot six inches of blue clay, filled with small pieces of white tufa. This bed was much hotter than either that above or that below it.

“ 16. One foot three inches of soft blue clay.

“ 17. Nine inches of an earth, easily pulverised when dry,

which, whilst moist, was of a violet colour; on exposure to the air, however, this rapidly changed to a chocolate brown. The heat was again augmented as the centre of the bed was approached.

“At thirty-two feet the full length of the boring implements was used up; but from the set of the country in the vicinity, the experimenters believed they were close upon basaltic rock, when the heat probably ceased.

“In digging for the peculiar kind of brown coal which they call ‘surturbrand’ (a kind of fuel very much resembling Irish bog-oak, which can be used for like purposes), the inhabitants frequently go as deep as twenty-eight feet. They report that before reaching this depth they frequently pass through three or four beds of blue, yellow, and brown clay, and almost invariably find that the layers of blue clay are much hotter than any of the other strata.

“A second trial of the soil was made in the neighbourhood of some recent springs, farther to the east. The activity of the agencies at work here appeared to be greater than in the former case, and to have been longer in operation. The whole surface was thickly covered with sulphur, in a finely-divided state; there was much gypsum, and a large efflorescence of feathery alum. Thousands of very minute holes were discoverable on close examination, through which continuous jets of steam, sulphuretted hydrogen and sulphurous acid gases were emitted.

“An attempt was made to dig with spades; but the soil was found to be so hot, whilst the footing was at the same time so insecure, that it could not be persisted in. A spot some distance farther off was therefore pitched upon, where the earth was firmer and colder. The borer pierced through six feet of blue clay with great facility, the lowest portion being extremely hot. After this depth the earth became rapidly softer, at the depth of seven feet the same peculiar bubbling noise before noticed was heard. Continuing to bore, the bottom of the hole appeared to be in a state of ebullition, a boiling liquid being ejected in the narrow space around the handle of the auger with extraordinary violence, and no sooner was the tool withdrawn

than a thick black fluid was ejected from the orifice to the height of several feet. A short time afterwards the jet ceased, the subterranean fire appeared to have expended its fury, but it soon recommenced with redoubled activity to dart forth fresh jets of steam and black, muddy water, continuing to boil and dance with but slight intermission. It appeared, therefore, evident that the result of this experiment was the premature formation of a fresh hot spring, which would otherwise have been, perhaps, a considerable time in forcing its way to the surface.

“It is somewhat to be regretted that no one amongst the numerous eminent men, men accustomed to experimental investigations and acute observers, who have since traversed this region, should have investigated the question of the origin of these hot springs and sulphur deposits from the point of view which was thus displayed by these careful and painstaking philosophers.

“The phlogistic theory being generally accepted in their day, and the chemistry of the earths and metals being in a very undeveloped state, we cannot now accept to its full extent the explanation they put forth of these phenomena; but the facts they disclose appear to me to be of the highest value, and to afford a clue which, if carefully followed, may lead to discoveries of much importance in the domain of volcanic energy.

“The conclusion they drew from their investigation is, that the hidden fires of Iceland dwell in the crust of the earth, and not in its interior; that the boiling springs and the mud caldrons certainly do not derive their heat from the depths of our globe, but that the fire which nourishes them is to be found frequently at only a few feet below the surface, in fermenting matters, which are deposited in certain strata.

“By their theory the gases from the more central parts of the earth penetrate these beds by subterranean channels, and so set up the chemical action, producing fermentation and heat, these channels also forming the means of intercommunication between the separate sites of activity, and equalising and transferring pressure.

“To return to their facts. They further observed that the heat is invariably found to be greatest in the blue and bluish-grey earth; that these earths almost always contain sulphuric acid; that they contain also sulphur, iron, alum, and gypsum; and lastly, that finely-divided particles of brass-coloured pyrites are visible throughout the whole of the beds when heat exists.

“Sulphuric acid is found in the hot beds above and below that which is the hottest, but this latter manifests no acidity that is sensible to the taste.

“Sulphuretted hydrogen is continually evolved from the clays containing the brass-coloured pyrites. Silver coins dropped into a hole made in these strata become rapidly reddened, and brass becomes quite black if held over it for a short time.

“Lastly, not only does the heat increase and diminish in various successive layers of the earth, in the neighbourhood of the active springs, but the locality of the heat, as might be expected from their previous observations, travels very considerably in different years.

“The solfatara of Krisuvik, with the mountains about it, is shown in the accompanying sketch by M. Eugène Roberts. It appears from afar to occupy the place of an ancient crater, but, as we have already seen, it is not near the crater, about the centre of the drawing, but at a considerable distance from the old volcanic centre, that the thermal springs and sulphurous exhalations have their present origin.

“Wherever they may have been previously, the springs are now situated between two mountains, the one Badstofer, on the right, originally composed of lava, the other, Vesturhals, on the left, of basaltic formation. Both, by the action of the thermal springs, are undergoing a process of disintegration and reconstruction.

“The kind of hills which form the solfataras, properly so called, increase in extent day by day; by the addition to the disintegrated rock of sulphur and of sulphurous and sulphuric acids.

“The yellow sulphur earth contains about four per cent. of free sulphuric acids; sometimes a little free hydrochloric acid, and a variety of sulphates, as might be supposed. Treated with

distilled water, the filtered solution reddens litmus strongly; on addition of acetate of lead a flocculent precipitate is produced, which, when heated with carbon, disengages sulphurous acid.

“The sulphur is found in many different conditions, but for the most part in the same finely-divided, whitish-yellow form in which it is precipitated from sulphuretted hydrogen solutions. Where it assumes other states, crystallised in tears on the sur-



SOLFATARA OF KRISUVIK. From a Sketch by M. Eugène Roberts.

face of the rocks, or coagulated in veins, it is on account of its having undergone subsequent heating. Of its primary origin by the decomposition of sulphuretted hydrogen, there is in my opinion no doubt.

“Professor Bunsen visited Krisuvik in 1845; his opinion is that sulphurous acid is evolved from the earth’s interior, which, oxidised either at the surface by the atmosphere, or at subterranean depths by atmospheric oxygen dissolved in cold water,

is converted into sulphuric acid. The sulphuric acid thus generated is diffused among the constituents of the decomposed beds. This process represents the first stage of the fumerole action, which is manifested in the namar or solfatara of Krisuvik.

“Sulphur is now generally regarded as emanating from the stage of intermittent lethargy of a volcano, and the sulphides of iron, copper, arsenic, zinc, selenium, etc., fall in the same category as sulphur; they are secondary, not primary, formations. In the stage further off we have the host of sulphates produced by the oxidation of the sulphur into sulphuric acid, and its subsequent reaction on the metals and earths with which it becomes associated.

“The description of the Sicilian sulphur beds coincides so very exactly with that of the Icelandic mines, that one might pass very well for the other. D'Aubigny pictures nearly the whole of the central portion of Sicily as being occupied by a vast bed of blue clay or marl, in which are numerous and thick beds of gypsum and sulphur, and a combination of this mineral with iron and copper. The natural process by which they have been formed must, I think, be the same in each case. At Krisuvik copper has been found only in small quantities, but that is probably because it has not been sought for below the surface. Carbonate of copper, associated with sulphate of lime, is of frequent occurrence; and native copper has to a limited extent been discovered.

“A district in America, very similar in most of its characteristics, has recently been explored. The great hot-spring region of the sources of the Yellowstone and Missouri Rivers, in the United States, has, on account of the wonderful natural phenomena there manifested, been set apart by the United States Congress as a great national park for all time.

“The whole of this district is covered with rocks of volcanic origin of comparatively modern date. At present there are no signs of direct volcanic action going on, but the secondary kind of action, resulting probably as at Krisuvik, from the disintegration and decomposition of beds of volcanic origin, is in full progress. Boiling springs, mud-caldrons, and geysers are found in all parts of the region, and the description given by Mr V.

Hayden, of the Yellowstone Lake and its vicinity, in every respect coincides with those of the geysers, mud-caldrons, and hot-springs of Iceland.

“In all cases there was found to be free access of water; free sulphur was widely dispersed, and the steam-jets were invariably accompanied by large quantities of sulphuretted hydrogen. The subterranean action in this country does not appear to have continued long enough to produce beds of sulphur and sulphurearths, but has, nevertheless, been of sufficiently long standing to build up geyser tubes of so great a length that the internal pressure has formed other vents, rather than lift the immense column of water above it.

“The water of the springs contains sulphuretted hydrogen, lime, soda, alumina, and a slight amount of magnesia; some of these are only occasionally at the boiling point, and these, when the temperature is reduced below 150° Fahr., deposit great quantities of the sesquioxide of iron, which lines the insides of the funnels, and covers the surface of the ground wherever the water flows. If the reaction consists in the decomposition of iron pyrites, and the sulphur is carried sufficiently far off to prevent its re-combination with the iron to form iron sulphate, the formation of the iron sesquioxide is fully accounted for.

“As a rule, the groups of hot springs are, as in Iceland, in the lower valleys, and either along the margins of streams, or nearly on a level with them. The grand area where they occur is within the drainage of the Yellowstone, where a space of forty miles in length, with an average width of fifteen miles, is either at the present time, or has been in the past, occupied by hot springs.

“That the quantity of sulphuric acid here produced is very large, is proved by the immense quantity of alum which is found, for the streams, the mud, the earth are thoroughly impregnated with it. The funnel-shaped craters from which the boiling mud is ejected, are so similar to those of the Krisuvik that the figure on page 140 will answer for both places. The circular rim varies from a few inches to several feet in diameter. Sometimes these are clustered close together, yet each one being separate and distinct from the others.

“The foregoing are the most prominent facts connected with the development of sulphur from the earth in the elementary state. The full explanation of all the phenomena accompanying it appears to me to be the key by which the great secret of volcanic energy may be ultimately unlocked. At present it appears to be doubtful whether the sulphur results from the decomposition of metallic sulphides, by heat and water combined, or by sulphuric acid formed by the oxidation of sulphurous acid. In the one case, the whole action is so far within our reach, that it should not be an insurmountable difficulty to establish the point as to whether the whole action does not depend on the percolation of water into beds of pyrites surrounded by other beds which are non-conductors of heat.

“The other view, viz., that the sulphur proceeds as sulphurous acid from a lower depth, is on account of the more complicated action required, far from being as satisfactory to my mind as the more simple supposition above.

“Until boring experiments have been made, conducted with great care, and to considerable depths, no positive conclusion can be arrived at. It is also an element in the question of much importance, to discover whether the beds penetrated by the water are already heated, whether the water is heated before it reaches the sulphur-bearing strata (the clays containing pyrites), or whether both are not alike cold till they have been for some time in contact.

“Less than a quarter of a mile from the hot springs is a lake, Geslratn, formed by the filling up of an extinct crater. This the inhabitants describe as being fathomless (Mr Seymour, last year, found no bottom at five and twenty fathoms). The depth is, at any rate, very considerable. Although so close to a spot where the ground is, even at the surface, scorching to the feet, the water in this lake is ice-cold. Sir George Mackenzie also remarked a somewhat similar fact. On the side of the Sulphur Mountain, amidst the seething, steaming hills of almost burning earth, a spring of clear cold water was met with. To my mind these facts are most in accordance with the view that the action is local and self-dependent.

“The Krisuvik sulphur mines have been worked at various

times, but want of proper roads, and ignorance of the proper method of extracting and refining the sulphur, have prevented their proper development. The Sicilian mines can be worked at a considerable profit, where, more than 390 feet below the surface, beds are met with containing only 15 per cent. of sulphur. At Krisuvik, absolutely on the surface, clays are met with which contain from 15 to 90 per cent. of sulphur. Under proper and careful supervision, their future should be prosperous.

“Two German gentlemen, under the auspices of the Danish Government, worked these mines in the early part of the last century, and so much was exported to Copenhagen during the time the excavations were carried on, that a sufficiently large stock was laid up to serve the consumption of Denmark and Norway from 1729 to 1753.

“Horrebow describes the sulphur mines as being actively worked from 1722 to 1728, to the great advantage of the inhabitants, who reaped much profit from its extraction.

“By his account of their mode of prosecuting this enterprise, the sulphur does not appear to have been refined in the island, but exported in its crude state. The less active mines were chosen for cutting into. He says: There is always a layer of barren earth upon the sulphur, which is of several colours, white, yellow, green, red, and blue. When this is removed, the sulphur earth is discovered, and may be taken up with shovels. By digging three feet down, the sulphur is found in proper order. They seldom dig deeper, because the place is generally too hot, and requires too much labour, also because sulphur may be had at an easier rate, and in greater plenty, in the proper places. Fourscore horses may be loaded in an hour's time, each horse carrying 250 lbs. weight. The best veins of sulphur are known by a kind of bank or rising in the ground, which is cracked in the middle. From hence a thick vapour issues, and a greater heat is felt than in any other part. These are the places they choose for digging, and after removing a layer or two of earth, they come to the sulphur, which they find best just under the rising of the ground, when it (the sulphur) looks just like sugar candy. The farther from the middle of the bank, the more it crumbles, at last appearing as mere dust. But the middle of

the bank is an entire hard lump, and is with difficulty broken through. The brimstone, when first taken out, is so hot that it can hardly be handled, but grows cooler by degrees.

“In two or three years these veins are again filled with sulphur. The death of the person at Copenhagen who had the sole and exclusive privilege of exporting sulphur from Iceland put an end to what had promised to be a very thriving industry. The inhabitants continued to collect the sulphur earth for some time after its exportation had ceased; and many of them lost considerably by it, large quantities having been gathered which they were never able to dispose of.

“According to Dr Perkins, the sulphur mines were again worked by the Danish Government for fifteen years, but the method of purifying adopted was very imperfect. The sulphur earth was heated in iron boilers, and when the sulphur was melted, fish oil was added, and the whole mass stirred up. On allowing the mixture to stand for a time, the earthy matter formed a soap on the top of the molten mass; this being removed, tolerably pure sulphur remained behind.

“In 1832, these mines were visited by K. von Nidda, the celebrated geologist, by whose advice a Danish merchant, named Kenidzon, purchased them. He only worked them for a short period. The sulphur earth was collected without much regard being paid to the relative richness of the beds. It was taken on the backs of horses to Havnafiord, and thence shipped to Copenhagen. The cost of transport brought the sulphur to too high a price to render the undertaking successful.

“In 1857, political matters caused the attention of Her Majesty's Government to be directed to finding a new source of sulphur supply. Commander J. E. Commerell, of her Majesty's ship ‘Snake,’ was sent to Iceland by the Lords Commissioners of the Admiralty, to visit and report upon the capabilities of the mines of Krisuvik and Husavik. He found that the nearest safe port to the Krisuvik beds was Havnafiord; this port is fourteen miles from the sulphur beds by the present roads, and nine miles from Reikjavik. The harbour is well sheltered, with good anchorage of seven or eight fathoms three cables' length from the beach; it at present enjoys as much traffic as Reikjavik. The road from

Krisuvik might be much shortened, and a tramway might also be laid down. During the past year a survey has been made, and plans drawn for a railway or tramway to Havnafoerd.

“The actual extent of the sulphur beds it is quite impossible to calculate; forty-seven have been already discovered. The deposit of sulphur Commander Commerell personally saw he describes as amounting to many thousands of tons, and, all the mines being in what is called a ‘living’ state, the sulphur taken away is reproduced in two or three years. He considers that sulphur in a pure state could be shipped at Havnafoerd for £1 per ton.

“The sulphur at Myvatn, though great in quantity, is, he considers, at too great a distance from a port of embarkation to permit its extraction being carried on with any chance of competing with that from the Krisuvik mines.

“No further steps were taken in the matter by the British Government, the political complications which led to the expedition having been removed; but the attention of English merchants having been drawn to these rich deposits by the highly favourable character of Commander Commerell’s remarks, renewed attempts are being made to render commercially available the immense sulphur-producing power which the Krisuvik solfataras undoubtedly possess. To some of these gentlemen I am greatly indebted for much valuable information, put at my disposal for the purposes of this paper, and amongst them I have specially to tender my thanks to Mr Ramsdale and Messrs Thorne, of Gracechurch Street, and particularly for the use of numerous and carefully-selected samples of the sulphur earths which were freely placed at my disposal. These samples I hope to make the subject of a future paper.

“Since writing the foregoing paper, I mentioned, in the course of conversation with Sir Henry Holland, the conclusions which are derived from the examination of all the trustworthy facts relating to the sulphur deposits. This led him to examine entries in his unpublished diary, made at Krisuvik in 1810. The theory which he then conceived so thoroughly agrees with all that has been learnt respecting the phenomena in question, that I, with his kind permission, print an extract from his note-book:

“The theory of these sulphureous springs (if springs they may be termed) at Krisuvik is an interesting object of inquiry. They are situated in a country decidedly of volcanic origin. The high ground on which they appear is composed principally of the conglomerate or volcanic tufa, which has before been noticed. The source of the heat which can generate permanently so enormous a quantity of steam must, doubtless, reside below this rock; whether it be the same which produces the volcanic phenomena may be doubted, at least if the Wernerian theory of volcanoes be admitted. It certainly seems most probable that the appearances depend upon the action of water on vast beds of pyrites. The heat produced by this action is sufficient to raise an additional quantity of water in the form of steam, which makes its way to the surface, and is there emitted through the different clefts in the rocks. The sulphates of lime and alumina, appearing upon the surface, are doubtless produced, in process of time, by these operations. In corroboration of this view, it may be observed that the quantity of steam issuing from the springs at Krisuvik is always greater after a long continuance of wet weather, and that whenever earthquakes occur on this spot, it is during the prevalence of weather of this kind.”

“The learned and now aged author expressed the highest gratification that the views which he formed at twenty-two years of age should possess so much value so many years after.”

The visit of the two engineers, Messrs Shields & Gale, has also been elsewhere alluded to. Finally, Mr R. M. Smith informs me that the prospects of the Krisuvik diggings now look brighter. The project of tramways, or locomotives, seems to have been abandoned in favour of carts and ponies plying on a good road, about sixteen miles long, between the Sulphur Mountain and Hafnafjörð.

SECTION II.—TO HEKLA, AND UP IT.

The next morning's work began with a path which introduced us to the mud-bog, as opposed to the turf-bog. This pleasant feature led to lava, whose three main torrents and many secondary streamlets could be seen spilling over the trap wall of Lángahlíð. There were the two normal kinds, the soft and cindery, caverned and friable, which makes good paths: it degrades to the dark red and yellow-red humus which is here, as in the Haurán, the general colour of the ground. This variety is clad with two lichens; the grey with black scutella (*L. calcareus?*), and the pure white (*L. Tartareus?*) which makes the ejections of the Safá near Damascus simulate limestone. The other is intensely hard, ruddy black or brown-grey, and in places solid as if poured out yesterday; the reason generally given is the presence of olivine in this trachytic or silicious form. M. Durocher's theory is, that being lighter than the doleritic and augitic (basic), it therefore floats separately, and thus he would explain how lava floods of different composition may proceed from the same locality.¹ The plications of this hard lava, looking as if hogs-heads of honey had been poured upon stone, the domes and the drops, not to speak of the sharp-toothed mouths and crevasses, make the traveller suffer for the sufferings of his nag.

At the end of the first great lava-stream was the farm of Herdísarvík; now not a "vík" but a "vatn"—we looked around for sulphur, but in vain. Hard by our right the fierce seas burst and roared upon a coast cruel and harbourless as that of Kafirland; whilst in the smooth distance a few catspaws suggested shoaly islets. The Hlíðarvatn (lithe or slope water) is not like its neighbour a misnomer, but the supply is brackish, ebbing and flowing with the tide, like wells in the valley of the Thames. The only birds seen were wild geese, crees, gulls, curlews, young snipes, and ravens which especially affect this warm part of the

¹ Mr Judd, examining Western Scotland, opines that the felspathic (acid) rocks have been erupted from the Eocene volcanoes, and the augitic (basic) from those of the Miocene age. In Iceland, however, both seem to have been discharged by the Post-tertiary, as well as by the Tertiary epochs.

island. During the halt we especially noticed a number of web-less hunting spiders, whose little nests were full of young—the peasants still preserve the old *Köngur-váfa* (web-weaver) which the citizens hold obsolete, preferring *Könguló* or *Konguló*. There are spider-stories, too, like the Gold Coast “*Anansesem* ;” a small red species, for instance, kills when it bites.

From Litlaland, which we reached whilst the sun was still high, we enjoyed a pleasant view. Beyond the rise of *Thorlaks-höfn* lie the “Irish Islands,” tall and picturesque, fronted by the great alluvial plain of south-western Iceland. It has been called *Tempe*, *Arcadia*, and *Vale of Enna*, though utterly unlike the grim defile of *Peneus*, the stern limestone mounts of the *Peloponnesus*, and the waterless slopes of *Sicily*. The “*Pastorale in A flat*,” as *Thomas Hood*, sen., would have called it, a raw northern facsimile of the *Lagos Lagoon*, as it appeared to me, gains dignity by the eastern background of eternal snows, the flat top of *Eyjafjall*, the long ridge of *Tindafjall*, and the sharp point of *Torfajökull*. And it is “classic ground.” From a commanding site we can prospect *Ingolfsfjall*, where Iceland’s first settler is supposed to be buried, and the *Bergthórshvoll* farm in the delta of the *Markarfljót*; behind it lies *Hlíðarendi*, where the “peerless *Gunnar*” sleeps in the *Tverá Holm*.¹

There is—for Iceland—rare pathos in this description of the hero’s tomb.

“They cast a cairn over *Gunnar*, and made him sit upright in the cairn.”

“He sang in the cairn which opened, and he turned himself and looked at the moon, which was shining clear and bright. And men thought they saw four lights burning in the cairn, and none of them cast a shadow. He sang a song, after which the cairn was shut up again.”

The next morning led us to *Reykir*. As we rode up the valley of the *Ölfusá* we could mark the features of the scene. In front the river was a lake, and the green expanse of the water-veined delta was scattered over with south-facing farms, not acknowledged by *Gunnlaugsson* and *Olsen*. *Eyrarbakki*, so called from

¹ “He” (*Gunnar Hámundarson*) “was eulogised by many poets after his death,” said an Icelander, with unthinking satire. The last poem is the “*Gunnarshólmur*,” by *Jonas Hallgrímsson*, a poet who, being loved of the gods, died young.

the host of islets which line the shore, is the only port till Berufjörð on the eastern coast, and it was wholly occupied by two ships. Mr William Hogarth of Aberdeen, who owned the establishment, has not been here, we were told, for years; lately, however, some English visitors had excellent fishing in the river, and were hospitably entertained by Hr Thorgrimsson, agent to M. Lefolii, a Danish merchant. All this greenery was set off by the barrenness of the buttressed Lángahlíð hard on our left. The regular horizon of trap-wall had been succeeded by a sharp slope of Palagonite conglomerate, which evidently underlies the whole



THE RURAL SCENE.

block. On the summit is a desert where no man dwells, broken by pyramids which are evidently lava-cones, Skálafell (scald or bald hill?) being the chief feature; upon the lips of the plateau are gushes of modern lava, and on the low levels appears an ancient sea-beach, scattered with rounded blocks like giant rocs' eggs.

"Hjalli," which we reached about noon, was somewhat peculiar

—instead of being a single farm, four establishments clustered round the black chapel. It had its rivulet where the girls comb their yellow hair o' mornings; the Lavapés (wash-feet) of the Brazilian country town; it had also its Paradís, a poetical name for the grassy combe, where men bask i' the sun. The males were clad in pastoral attire, the old native dress deemed somewhat too *marqué* for town and comptoir. The chief items are a shirt, a waistcoat, and a tight, very tight, flannel culotte, braccæ gartered below the knee and ending in stockings and Iceland shoes. The stranger's first impression is that harlequin, without his spangles, has forgotten his overalls. This primitive toilette of the non-Roman races,¹ which gave birth to our civilised attire, still lingers in parts of Europe, notably in the Cicería of Istria, where the charcoal-burners (Cici) will adopt no other costume. And what can be more ridiculous than the Hungarian foot-soldier wearing his drawers, when we know the wide Turkish Shalwar to be his national terminations?

“Reykir!”² ejaculated Páll, pointing triumphantly to a little yellow splotch on the far side of the broad valley. As we progressed towards the Reeks, we found the forage improving, and the soil becoming damper; this is commonly the case, because the western frontage enjoys the most sun. Of five springs clustered upon either bank of the little Varmá, the largest lies on the left, where Palagonite breccia forms the base of a ruddy spine, projected by the northern outliers of the Ingolfsfjall *massif*. The usual motley colours of a solfatara are set off by a more brilliant green than usual, and by a silver-tinted moss (*Trichostomum canescens*), which makes the turf-carpet feel soft as velvet.

Reykir is known as the Lítlé Geysir, or “the Geysir in Ölfus.” In 1770 Uno Von Troil declared that it used to rise sixty to seventy perpendicular feet, in fact, as high as the Great Geysir of 1872, but that an earthquake, after cutting off a few feet (fifty-four to sixty), made it spout sideways. Nothing can be

¹ The Romans were naked below the knee: the pillars of Trajan and Antonine show Teutonic captives wearing a dress much resembling that of our peasants and sailors.

² Often written Reykium (for Reykjum), dative plural of second declension. As has been seen, the word enters into a multitude of Icelandic proper names.

meaner than the modern display, and my companion compared it disadvantageously with that "furious fountain" of the guide-books, the Sprudel of Carlsbad. The chief well to the north has built for itself a party-coloured mound like a nest of African termites, and puffs only vapour with the sumph of a donkey-engine. A hundred yards or so to the south is a younger spring with double boilers, in which the water may rise at times a foot and a half high: the "hell broth" slithers through a soft and sippy circle, down a foul channel of burnt pyrites and silica-clothed trap to the bubbling Varmá. This stream shows from a height, three branches draining from the north-west, where are other sulphur springs.

A whole generation of travellers has complained of the farmer of Reykir, who is said to have charged one man \$52 per diem. We can only speak of him as we found him; his demand for forage was extremely moderate, and we attributed the fact to having an honest and thrifty guide.

A swampy ride in the afternoon led to the ferry of the Ölfusá or lower Hvitá. The ground was spangled with Fífa or cotton grass (*Eriophorum*), a weed with a bad name. It is more common here than in the southern islands, Scotland, and Germany, and it is supposed to haunt the worst and most dangerous bogs, where water sinks instead of flowing. "Avoid cotton grass ground" is the advice of every traveller: unfortunately you cannot, and you must make the best of it. But why call it the "treacherous cotton grass," when it at once tells you the worst? On the other hand, buck-bean (Hor-blaka, or *Menyanthes trifoliata*) is praised because it shows the surface to be safe.

After three hours we reached the ferry, a busy scene for Iceland. Caravans charged with imported boards and fish to be exported, lay unloaded on either bank. Amongst the travellers was the Bishop of Iceland with a party of six; he had ridden from Reykjavik to Reykir in nine hours, and as he sat water-proof'd in the sun, he complained sadly of fatigue. A couple of two-oared boats, big and small, with a third high and dry, did not tend to expedite transit—nothing would be easier than to establish a wire rope and a ferry with lee-boards, thus making the current do all the work.

Rain threatened, and we lodged, as Abyssinians might lodge, in the church of Laugadælir, after duly admiring the farmer's *chef d'œuvre*, a brass chandelier. All was very grotesque; the Psalms were chalked up on the wall, a Mambrino's helmet acted font, and the altar-piece showed bow-legged Mattheus, with Marcus, Lucus, and Johannes to match. Around the fane lay the churchyard, where the peasant

"lies at peace with all his humble race,
And has no stone to mark his burial-place."

It was the usual reverse of gardenesque or picturesque. Sheep grazed upon the weeds that "had no business there," and the railings were utilised for drying socks and small-clothes.

The fourth march proved peculiarly unpleasant. When the weather is bad at Reykjavik, here it is detestable. The display of water-works seemed the effort of the old Polynesian giants, who submerged the greater part of earth—Terrible-rain, Long-continued-rain, Fierce-hailstorm, and their progeny, Mist, Heavy-dew, and Light-dew. In plain English it was a "jolly wet day." The horses very sensibly bolted up stream, and refused to be caught till noon, when the men returned dripping as loons or roaches. The delta of the two great streams is said to be, in fine weather, one of the fairest pastoral scenes the island can show; but we saw it at its worst, sadly deformed, and we gathered practical experience of what a few hours of downfall can do in this semi-saturated region. The paths were "dead," or rather, they were shown only by lines of puddle; the sloughs and quagmires admitted our ponies to the hocks; the drains overflowed like little hill-races, and the labour of rounding the deeper fens was immense. A few peaks which lay but a little distance to the north seemed immeasurably removed, like

"Far-off mountains turned into clouds."

About mid-afternoon we came upon the Thjórsá, "fluviorum rex Eridanus" of Iceland: even at this upper part it looked like an estuary, split by sandbars, piles of basalt, sandbars and basalt again. We pushed hard over the few good places; and moist, mouldy, and malcontent, we were right glad to find ourselves in the strangers' room of the ferryman's house: 20 feet long by 14

broad and 7 high: dated 1848, it was an *omnium gatherum* of the family goods, and it boasted of one four-paned window, which has never opened, and which never will. The features denoting wealth were huge wooden lockers, like seamen's chests, of bright colours, painted with flowers and arabesques of still brighter tints: I could not but remember the pea-green and gamboge box which carried to Meccah the drugs of a certain "Haji Abdullah." The soiree ended with a distressing banality. Fair visions of girls who kiss the stranger on the mouth, who relieve him of his terminal garments, and who place a brandy bottle under his pillow, and a bowl of milk or cream by his side, where are ye? Icelanders have allowed their pleasant primitive fashions to be laughed away by the jeering stranger, who little thought how much the custom told in favour of the hosts. The *naïve* modesty of antiquity, when Nestor's youngest daughter laved, anointed, and dressed Telemachus, and when the maids of Penelope had a less pleasant task with the elderly Ulysses, has departed with the public bathings, in angelic attire, of Iceland, of Sind, and of Japan, and the kiss given to the guest by the young wife or the eldest daughter of the Morlacchi house. This *sublime impudeur* was possible only amongst a pure race: the sneers of a single civilised savage suffice to demolish this "*heureuse absence du 'schoking.'*"

Next morning, while the horses were grazing, we ascertained that the farm had its therma: a jet of steam issuing from the ground near the river had been turfed over, with room to stand; and thus a Turkish, or rather a Russian, bath was possible on bath-day. We then walked down to the Thjórsá, an especially grisly spectacle. Its breadth, 250 yards, was occupied by white glacier water, with a sulphury tinge, rendered more ghastly by the black sand, rocks, and islets studding the bed above and below the ferry. The right bank showed a wall of conglomerate, and on both sides "cachoeiras" dashing over the stones gave pleasant reminiscences of San Francisco. The left bank is of Hekla lava, either compact or very porous containing crystals of lime. We found a natural hatchet and quantities of pumice, many-coloured, but mostly yellow: it floats in water, and it is useful for holystoning the skin. The velocity was three knots, and the

temperature 52° (F.). The ferry creeps up from the stone-head acting pier on the right bank, swings across below the break, and lands you in water on the far side.

The conduct of ponies at the ferry is always amusing. They are driven in by the shouts of lads and lasses, by tossings and wavings of the arms, by sticks and stones, and by the barking and biting of curs. They sidle, jostle, step in daintily, smell the water, and, after trembling on the brink for a time, some plucky little nag takes the lead. He is followed by the ruck, but there are often cowards ready to hark back: these must be forced on with renewal of stick and stone, and by driving those that have crossed up and down the bank. In dangerous narrow beds, it is often necessary to tow over shirkers one by one with a rope. The swimmers gallantly breast the flood, which breaks upon their crests; and they paddle with heads always up stream, dilated eyes and nostrils snorting like young hippopotami; the best always carry the back high. As they reach the far end, they wade slowly to shore, and fall at once to grazing. They took four minutes thirty seconds to cross the Thjórsá, and as usual they were drifted far down.

We then pricked fast over the little pampa which lies between the Thjórsá and the Hekla-foot, making, I know not why, for Stóruvellir. Here we were received by Síra Guðmundr Jónsson, a gentlemanly man, who has accompanied several travellers, notably the "Oxonian," up the volcano; he showed the Iceland peculiarity of "walking the quarter-deck;" and his handsome blue-eyed daughter wore the sternest of looks, apparently engendered by semi-solitude. He indulged in wild archery about the dangers of the climb, which, over biscuits and coffee, sounded truly awful. After leaving the parsonage, we enjoyed our first fair view of Hekla: during the earlier ride it had been buried in clouds, and hidden by the chapel block, Skarðfjall.

The Hekla of our ingenuous childhood, when we believed in the "Seven Wonders of the World," was a mighty cone, a "pillar of heaven," upon whose dreadful summit white, black, and sanguine red lay in streaks and patches, with volumes of sooty smoke and lurid flames, and a pitchy sky. The whole was somewhat like the impossible illustrations of Vesuvian eruptions, in

body-colours, plus the ice proper to Iceland. The Hekla of reality, No. 5 in the island scale,¹ is a commonplace heap, half the height of Hermon, and a mere pigmy compared with the Andine peaks, rising detached from the plains; about three and a half miles in circumference, backed by the snows of Tindafjall and Torfajökull, and supporting a sky-line that varies greatly with the angle under which it is seen. Travellers usually make it a three-horned Parnassus, with the central knob highest—which is not really the case. From the south-west, it shows now four, then five, distinct points; the north-western lip of the northern crater, which hides the true apex; the south-western lip of the same; the north-eastern lip of the southern crater, which appears the culminating point, and the two eastern edges of the southern bowls. A pair of white patches represents the “eternal snows.” On the right of the picture is the steep, but utterly unimportant, Thríhryngr, crowned with its bench-mark; to the left, the Skarösfjall, variegated green and black; and in the centre, the Bjólfell, a western buttress of the main building, which becomes alternately a saddleback, a dorsum, and an elephant’s head, trunk, and shoulders.

We came upon the valley of the Western Rángá² at a rough point, a gash in the hard yellow turf-clad clay, dotted with rough lava blocks, and with masses of conglomerate, hollowed, turned, and polished by water: the shape was a succession of S, and the left side was the more tormented. Above the ford a dwarf cascade had been formed by the lava of '45, which caused the waters to boil, and below the ford jumped a second, where the stream forks. We then entered an Iceland “forest,” at least four feet high; the “chapparal” was composed of red willow (*Salix purpurea*), of Grá-viðir, woolly-leaved willow

¹ The four higher are (S.E.) Örafajökull (6426 English feet); (W.) Snæfell (5964); Eyjafjallajökull (5593) to south, and Herðubreið (5447) to north-east. Stanley (repeated by Dillon) assigned to Hekla 4300; Sir J. Banks, with a Ramsden's Barometer, 5000. Gunnlaugsson gives 5108, but here he is very defective, wanting a separate and enlarged plan. The direct distance from the summit to the sea is usually laid down at thirty miles; measured upon the map, the “bee-line” would be twenty-seven geographical miles.

² Rángá (“wrong” or crooked stream) is a name that frequently occurs, and generally denotes either that the trend is opposed to the general water-shed, or that an angle has been formed in the bed by earthquakes or eruptions.

(*Salix lapponum*),¹ the "tree under which the Devil flayed the goats"—a diabolical difficulty, when the bush is a foot high—and the awful and venerable birch,² "la demoiselle des fôrets," which has so often "blushed with patrician blood." About mid-afternoon we reached Næfrholt (birch-bark hill),³ the "fashionable" place for the ascent, and we at once inquired for the guide. Upon the *carpe diem* principle, he had gone to Reykjavik with the view of drinking his late gains; but we had time to organise another, and even alpenstocks with rings and spikes are to be found at the farm-house. Everything was painfully tourist.

In the evening we scaled the stiff slope of earth and Palagonite which lies behind, or east of, Næfrholt: this crupper of Bjölfell, the Elephant Mountain, gives perhaps harder work than any part of Hekla on the normal line of ascent. From the summit we looked down upon a dwarf basin, with a lakelet of fresh water, which had a slightly (carbonic) acid taste, and which must have contained lime, as we found two kinds of shells, both uncommonly thin and fragile. Three species of weeds floated off the clean sandstrips. Walking northwards to a deserted byre, we found the drain gushing under ground from sand and rock, forming a distinct river-valley, and eventually feeding the Western Rángá. This "Vatn" is not in the map; though far from certain that it is not mentioned by Mackenzie, we named it the "Unknown Lake." Before night fell we received a message that three English girls and their party proposed to join us. This was a "scare," but happily the Miss Hopes proved plucky as they were young and pretty, and we rejoiced in offering this pleasant affront of the feminine foot to that grim old *solitaire*, Father Hekla.

Before the sleep necessary to prepare for the next day's work, I will offer a few words concerning the "Etna of the

¹ The down is applied as a styptic to cuts, the leaves are used in tanning, and the wood makes ink.

² Klaproth remarks that this is the only tree (? the poplar = Pippal) which the Aryan colonists of Europe remarked, and distinguished by the Sanskrit name. Thus Bhurja became the Latin *Betula*, the Gothic *Birkun*, the Scandinavian *Birki* and *Björk*, the German *Birke*, and the English *Birch*. The name is applied under the form of *Bjarkar* to the thirteenth Runic letter = B or P; and it is the first Irish letter, *Beith*.

³ Næfr, or birch-bark, was used for thatching: Næfra-maðr, the birch-bark man, was an outlaw (Cleasby).

North," sparing the reader, however, the mortification of a regular history. It was apparently harmless, possibly dormant, till A.D. 1104, when Sæmund, the "Paris clerk," then forty-eight years old, threw in a casket, and awoke the sleeping lion. Since that time fourteen regular eruptions, without including partial outbreaks, are recorded, giving an average of about two per century. The last was in 1845. The air at Reykjavik was flavoured, it is said, like a gun that wants washing; and the sounds of a distant battle were conducted by the lava and basaltic ground. The ashes extended to Scotland. When some writers tell us that on this occasion Hekla lost 500 feet in height, "so much of the summit having been blown away by the explosions," they forget or ignore the fact that the new crater opened laterally, and low down.

Like Etna, Vesuvius, and especially Stromboli, Hekla became mythical in Middle-Age Europe, and gained wide repute as one of the gates of "Hel-viti." Witches' Sabbaths were held there. The spirits of the wicked, driven by those grotesque demons of Father Pinamonti which would make the fortune of a Zoological Society, were seen trooping into the infernal crater; and such facts as these do not readily slip off the mind of man. The Danes still say, "Begone to Heckenfjæld!" the North Germans, "Go to Hackelberg!" and the Scotch consign you to "John Hacklebirnie's house." Even Goldsmith (*Animated Nature*, i. 48) had heard of the local creed, "The inhabitants of Iceland believe the bellowings of Hecla are nothing else but the cries of the damned, and that its eruptions are contrived to increase their tortures." Uno Von Troil (*Letter I.*), who in 1770, together with those "incliyti Britannici," *Baron Bank* and *Dr Solander*, "gained the pleasure of being the first who ever reached the summit of this celebrated volcano," attributes the mountain's virginity to the superstitions of the people. He writes soberly about its marvels; and he explains its high fame by its position, skirting the watery way to and from Greenland and North America. His companions show less modesty of imagination. We may concede that an unknown ascent "required great circumspection;" and that in a high wind ascensionists were obliged to lie down. But how explain the "dread of being blown into the most dreadful

precipices," when the latter do not exist? Moreover, we learn that to "accomplish this undertaking" they had to travel from 300 to 360 miles over uninterrupted bursts of lava, which is more than the maximum length of the island, from north-east to south-west. As will be seen, modern travellers have followed suit passing well.

The next morning (July 13) broke fair and calm, reminding me

"Del bel paese la dove il sì suona."

The Miss Hopes were punctual to a minute—an excellent thing in travelling womanhood. We rode up half-way somewhat surprised to find so few parasitic craters; the only signs of independent eruption on the western flank were the Rauðhólar (red hills), as the people call their lava hornitos and spiracles, which are little bigger than the bottle-house cones of Leith.

At an impassable divide we left our poor nags to pass the dreary time, without water or forage, and we followed the improvised guide, who caused not a little amusement. His general port was that of a bear that has lost its ragged staff—I took away his alpenstock for one of the girls—and he was plantigrade rather than cremnobic: he had stripped to his underalls, which were very short, whilst his stockings were very long, and the heraldic gloves converted his hands to paws. The two little snow fons ("steep glassy slopes of hard snow") were the easiest of walking. We had nerved ourselves to

"Break neck or limbs, be maimed or boiled alive,"

but we looked in vain for the "concealed abysses," for the "crevasses to be crossed," and for places where "a slip would be to roll to destruction." We did not sight the "lava wall, a capital protection against giddiness." The snow was anything but slippery; the surface was scattered with dust, and it bristled with a forest of dwarf earth-pillars, where blown volcanic sand preserved the ice. After a slow hour and a half we reached the crater of '45, which opened at nine A.M. on September 2, and discharged lava till the end of November. It might be passed unobserved by an unexperienced man. The only remnant is the upper lip prolonged to the right; the dimensions may have been

120 by 150 yards, and the cleft shows a projecting ice-ledge ready to fall. The feature is well marked by the new lava-field of which it is the source: the bristly "stone-river" is already degrading to superficial dust. A little beyond this bowl the ground smokes, discharging snow-steam made visible by the cold air. Hence doubtless those sententious old travellers "experienced, at one and the same time, a high degree of heat and cold."

Fifteen minutes more led us to the First or Southern Crater, whose Ol-bogi (elbow or rim) is one of the horns conspicuous from below. It is a regular formation about 100 yards at the bottom each way, with the right (east) side red and cindery, and the left yellow and sulphury; mosses and a few flowerets grow on the lips; in the sole rise jets of steam, and a rock-rib bisects it diagonally from north-east to south-west. We thought the former the highest point of the volcano, but the aneroid corrected our mistake.

From First Crater we walked over the left or western dorsum, over which one could drive a coach, and we congratulated one another upon the exploit. Former travellers, "balancing themselves like rope dancers, succeeded in passing along the ridge of slags which was so narrow that there was scarcely room for their feet," the breadth being "not more than two feet, having a precipice on each side several hundred feet of depth." Charity suggests that the feature has altered, but there was no eruption between 1766 and 1845; moreover, the lip would have diminished, not increased. And one of the most modern visitors repeats the "very narrow ridge," with the classical but incorrect adjuncts of "Scylla here, Charybdis there." Scylla (say the crater slope) is disposed at an angle of 30° , and Mr Chapman coolly walked down this "vast" little hollow. I descended Charybdis (the outer counterscarp) far enough to make sure that it is equally easy.

Passing the "carriage road" (our own name), we crossed a *névé* without any necessity for digging foot-holes. It lies where sulphur is notably absent. The hot patches which account for the freedom from snow, even so high above the congelation-line, are scattered about the summit: in other parts the thermometer, placed in an 18-inch hole, made earth colder than air. After a short climb we reached the apex; the ruddy-walled

north-eastern lip of the Red Crater (No. 2) : its lower or western rim forms two of the five summits seen from the prairie, and hides the highest point. We thus ascertained that Hekla is a linear volcano of two mouths, or three including that of '45, and that it wants a true apical crater. But how reconcile the accounts of travellers? Pliny Miles found one cone and three craters; Madame Ida Pfeiffer, like Metcalfe, three cones and no crater.

On the summit the guides sang a song of triumph, whilst we drank to the health of our charming companions and, despite the cold wind which eventually drove us down, carefully studied the extensive view. The glorious day was out of character with a scene *niente che montagne*, as the unhappy Venetian described the Morea; rain and sleet and blinding snow would better have suited the picture, but happily they were conspicuous by their absence. Inland, beyond a steep snow-bed unpleasantly crevassed, lay a grim photograph all black and white; Långjökull looking down upon us with a grand and freezing stare; the Hrafninnu Valley marked by a dwarf cone, and beyond where streams head, the gloomy regions stretching to the Sprengisandur, dreary wastes of utter sterility, howling deserts of dark ashes, wholly lacking water and vegetable life, and wanting the gleam and the glow which light up the Arabian wild. Skaptár and Örefa were hidden from sight. Seawards, ranging from west to south, the view, by contrast, was a picture of amenity and civilisation. Beyond castellated Hljóðfell and conical Skjaldbreið appeared the familiar forms of Esja, and the long lava projection of the Gold Breast country, melting into the western main. Nearer stretched the fair lowlands, once a broad deep bay, now traversed by the network of Ölfusá, Thjórsá, and the Markarfljót; while the sixfold bunch of the Westman Islands, mere stone lumps upon a blue ground, seemingly floating far below the raised horizon, lay crowned by summer sea. Eastward we distinctly traced the Fiskivötn.¹

¹ Mr Pliny Miles distinctly denies the existence of these fish-lakes, which Metcalfe observed, and which we clearly saw. There is a Fisksvatnsvegr, which has been travelled over, and there are reports of a volcano having burst out there about a century ago.

Run the eye along the southern shore, and again the scene shifts. Below the red hornitos of the slope rises the classical Three-horned, not lofty, but remarkable for its trident top; Tindfjall (tooth-fell) with its two horns, or pyramids of ice, casting blue shadows upon the untrodden snow; and the whole mighty mass known as the Eastern Jökull, Eyjafjall (island-fell), so called from the black button of rock which crowns the long white dorsum; Kátlá (Kötlu-gjá), Merkrjökull, and Goðalands, all connected by ridges, and apparently neither lofty nor impracticable.¹ I venture to predict that they will succumb to the first well organised attack.

The descent, in three hours, was as fast as the ascent had been slow. We soon saw the last of our fair companions who, mounted and attended by their train, rode gallantly back to Stóruvellir. Amongst the party was Síra Guðmundr's son, a sharp youth of eighteen, and if there was not something under his waistcoat buttons which was beating at an accelerated pace, I am much mistaken. We felt demoralised by this unusual dissipation; we cooled our blood with Skyr; we bathed in the Lavapés, and we tried throwing a line, but came back with a hook behind, as the people say.

The reader will probably determine that this account of Hekla is a trifle hypercritical. But after a single day spent upon the volcano, which has so often been ascended, what can man find to explore except the labours of his predecessors? Nor would it be fair to leave unnoticed this excellent specimen of exaggerated writing upon the subject of Thule, which perhaps culminates on Hekla.

SECTION III.—TO GEYSIR, AND AT IT.

I would willingly have spent another day on Hekla, but the seething hot morning (82° F., at nine A.M.) had animated the flies with a more than normal "cussedness." The scene was

¹ The highest apparent point shown to us on the south-east was Grænafjall. Upon the map it is an insignificant north-eastern "mull" of the Tindafjalla-jökull, but refraction had added many a cubit to its low stature.

unusually "Arcadian." Betimes the dogs folded the ewes with loud barkings, re-echoed by the backing ridge; and mother and daughters went to milk them, the "help" carrying a pair of pails fended by a square hoop. Meanwhile the lads drove the cows towards the womankind, and accompanied the horses to pasture. Even the hyæna-striped cats, bastard tortoise-shells, crept towards the fields, as if intent on grasshopper-hunting. About the house hung only the mankind, too dignified for labour; and the grandmother here is, like the grandfather, an institution; the bearded, mustachioed "old soldier," with huge fez and hair cut boy-fashion, wanted to "swop" with us for spirits: all the males, middle-aged or old—the latter *plutôt vicillis que vieux*—appeared cut in the same pattern. Their necks were swathed as if lately recovering from diphtheria; their coarse heavy limbs were displayed by the flannel "tights;" their unshaven faces with loose lips, open mouths, and noses embrowned by preeing the sneeshing-mull, looked stolid enough when bleary-eyed; when not so the hard optics had a cunning rat-like expression, showing that abundant *selbstgefühl* and a strong brain lie behind that unpromising mask. Such in some points was, in days we have read of, the rude Carinthian boor, now most polished of peasants.

This day's march, between Hekla and the Geysir, is one of the most unpleasant in civilised Iceland. Travellers going eastward complain of it, and we found it worse for horse and rider, as the progress was from good to bad. A clerical friend subsequently divided the *iter* into three: between Næfrholt and the Thjórsá it was "bonum," "mediocre" from the river to Hruni, and thence to the end "malum"—"pessimum." As it is Sunday, the ferry lacks ferryman, and delays us for some time. The peasants are all *endimanchés*, and they stare at the stranger, expecting him to bow first. The Brazilian Caipira bends to the best mule, the Styrian to the black coat, but these men have no standard, and a rough nod is the extent of their recognition. They remind me much of what was said about the Siebenburgers of Transylvania: "The people are shrewd and intelligent, and, thanks to the national custom, they possess a fair amount of knowledge. But the peasant's demeanour imposes at

first, and all would be *adelig*. After this it rather tells against him than otherwise, for when you come to measure him, you involuntarily do so by a higher scale than you would apply to another in his position of life. Then, if you find discrepancies, you are apt to judge him over severely, but this is partly his own fault, for it was solely his air and manner which caused you to apply the standard you have chosen." On the other hand, the unpromising figure that rides by with a glare in Iceland may be a man of substance, possibly even a vestryman.

We saw Hekla more than once on both sides of the Thjórsá, and now, aided by experience, we could explain the varying of the apices. About mid-afternoon we came upon the Laxá, for which Páll condescended to make certain preparations. An old man mumbled some directions about the ford, but they were utterly unintelligible. A mark persuaded a barefooted woman to leave the house: after spitting, as did the gentlemen of Beaux before they drank, she led the way, knitting and talking at least a quarter of an hour, to impress upon us the necessity of making for *that* rock. Crossing the broad bed was quite easy, and the view was unusually picturesque. The goodly stream was girt on both sides by spoil banks of red and white earth, suggesting hot springs; there were green side-gorges ready for homesteads, and the upper part was a rugged brown ravine, somewhat like what may be seen on the higher Arno.

After fording we rode up to the Sólheimar farm, a large and comfortable establishment; its approach was the usual avenue which wants ditches and drains instead of turf walls. The churlish owner detained us till the horses were strung together and sent, under the charge of his son, outside the "tún." He gave us some skimmed milk, and we paid him half-a-mark. The idea of a gentleman farmer, or even humble Giles, taking twopence for a glass of small beer!

We sat, after reaching Hrúni, amongst the graves, which had just been utilised by mowing. Seeing our forlorn plight, the Prófastr, Síra Johann Brím or Briem, came out of his house, kindly greeted us in Latin, and did the honours of his little church. On the right of the entrance was the small library, containing the oldest Icelandic translation of the New Testa-

ment¹—not bad *pro pauperie nostrá*. Better still, he led us to his home and, enlarging upon the *mal paso* before us, he adhibited a most copious feed of Hvítá salmon, smoked beef, cheese, biscuits, and white bread, with golden sherry and sundry cups of *café au lait*. And as we mounted with many *vales* and *gratias agimus*, he insisted upon a final Hesta-skál (stirrup-cup) of distilled waters. I afterwards learned that we were not the only travellers whom the good Prófastr has sent on their way rejoicing: he extends a similar hospitality to all strangers.

Mightily refreshed, we looked forward with pleasure to the novelty of a really vile Iceland path, and to fording a river with a notably bad name. The line was certainly foul, a succession of ugly swamps: in this part of the island the meridional routes are good, not so those running east to west, and striking the streams at right angles. The Hvítá proved itself a barking dog; the muddy white water, like the discharge of a gutter, was split into six veins, and swashed round the sand-holms, bright with the island-rose. The worst were Nos. 1, 4, and 6, the latter nearest the right bank. Páll's nag came to grief over a round stone, but he cleverly dismounted; and our stout little animals, now waxing sadly tired, mustered courage to spring goat-like up the steep side. In the Morea this Hvítá would be called Gaidar-opnictis, or the donkey-drowner.

We travelled along the right-hand valley of the White Water, which here assumes a menacing, sinister aspect, and the frequent ferries, above and below the ford, prove that it can be really dangerous: when the spring-snows melt, the scene must be imposing. The current, like that of the Congo, boils and swirls through a deep gorge, a trough of perpendicular rocks which wholly ignore landing-places. A number of "old men" showed the desolation of the land, all gorges and dykes, and the sheep followed us, as young bisons do, for company's sake. We remarked, for the first time, that the sun really set, and that in Iceland there is such a thing as a moon: this simulation of night without a dawn before one A.M. was comforting. Still in the brassy northern sky rose the weird forms of the Jarlhettur,

¹ Alluded to in Chap. VI.

the earl's hats—and we wearily wondered who the hatter might have been. A tower and a rampart, jagged into a saw, form a castellated wall defending the south-eastern glaciis of Láng-jökull. About ten P.M. we fell into a long descent, clothed with birch forest, and we idly discussed how long it would take a rhinoceros to graze it down. Mr Bryson could not trace any birch or bush nearer than thirty miles from the Geysir: he might have found them within five miles to the west and seven to the east. A big column of white vapour on our right, and others scattered over the distance, again and again deluded us, and we neglected the real thing, two humble puffs, to the left or west.

A short colloquy at a farm-house made Páll sure of his direction, and he hurried us on to the goal through villainous bog and splashing streams. Disappointment at once awaited us. A large party of travellers had, we heard, pitched tents at the water-works, stubbornly resolved to wait an explosion. The hay, the firewood, the broken bottles, the scraps of newspaper, and the names fresh-graved upon the sintery saucer told their own tale: the Gusher had gushed, we afterwards learned, on the 13th, and might not gush again for a fortnight. In melancholy mood we pitched the "pal," open towards the basin, and under the shadow as it were of the steam, which we could hear, see, feel, touch, and smell. The guide went off to sleep at Haukdalur (hawk dale), a farm dimly looming to the north; but the traveller is, to speak figuratively, tied by the leg, chained to the Geysir. Unless Fate favour him with a display, he can neither visit the home of Ari Fróði nor St Martin's baths, whose miraculous cures of the lame and the leper have ceased with the child-like, trusting faith that caused them.

Once or twice during the remnant of the night we heard a growl, when

"Fell Geysir roared and struggling shook the ground."

Each time the rumble and the crepitus caused a rush from the tent, but beyond the pleasing mobility of the vapour-clouds there was nothing to see. The cold morning air showed the puffs and sheets of steam rising from the Geysir-ground to great advantage.

St Swithin's Day "in the mornin'," began with a visit from Páll, who brought an old woman to make coffee at the boiling spring, and Haukadals cream which savoured strongly of civilisation influences—Hr Sigurðr Pállsson's family has evidently learnt "a thing or two." Came also the spade *de rigueur*, which a generation has used for worrying the Strokkur; it lets for \$1 per diem, and by this time it must have proved itself a small silver mine.

The day broke cold and cloudy, with a wind from north and north-west, and the air was not swept clean till the afternoon, when a strong north-wester set in. We found to the west of the Geysir a bath, lately made with turf and stone; its unconscionable heat drove us farther south. An excellent therma might easily be cut in the silex; and as for warm and cold water, they can be turned on *ad libitum*. The element has a slimy feel, the effect of silica (?), which reminded me of Central African frog-pools; it has no appreciable taste nor sediment, yet clothes washed in it are tainted with sulphur; and we can swear that it tinges "Schnapps" with a rich horsepond hue.

After the holystoning required for comfort, we proceeded to the serious study of the emplacement. It has been perfunctorily described by all travellers, even by Baring-Gould, and worse by the venerable Lyell. The latter makes "the Geysers" rise through lava which may have been erupted by Hekla, distant only thirty miles, which is impossible.

The site has been compared with the Vale of Siddim (the gushers?), where a certain "sad catastrophe" took place, and where general volcanic action exists only in the brain of M. de Saulcy. Nothing can be more unlike. These pocket "Campi Phlegrei" cover a few square yards, a patch probably overlying pyrites, upon the left or western plain, which gently slopes towards the Túngufljót. The "Tongue"¹ or Mesopotamian "flood" winds snake-like through the moorland of dull-yellow clay, rhu-barb-coloured humus, and bog, alternating with green vegetation: here it is hid by high banks; there it shows its vertebrae in streaks and dots of silvery stream, flashing in the sun. Houses and farms unknown to the map vary the surface. The readily-

¹ Tunga is applied to the Doab of two rivers; Tangi is a land-spit, a point projecting into the sea or river.

flooded river-valley, of old a sea-arm, trends with almost imperceptible fall from north-north-east to south-south-west; and at this point it may be nine miles wide: in the former direction it drains the Haukadalsheiði, and ultimately the Lángjökull. Up stream the eye ranges from the azure saddleback of Bláfell, an extinct volcano, they say, to the lumpy cones and denticulated crests, rocky and snowy, known as the Hrótafell, the Hrefnubúðir, the Brekkja, and the Hreppfjall. Down stream the glance rests upon a number of little mounds dotting the various alluvial Doabs of the ancient Fjörð, especially the Hestfjall, backed by the taller Örfúfell, lying south-east of Skálholt. The eastern bank is a regular line of rolling hill, separating the main artery from the Hvítá, the snow-streaked peaks of Gellingafell: the Berghyllsfjall, and the coffin-shaped Miðfell are the principal eminences. The western flank is formed by the major range of the Laugarfjall, which is not named in the map; this line is backed by the Bjarnarfell, the Sandfell, and the lava-stream known as Uthliðshraun.

But the intricacy of the site, a valley within a valley, is not yet ended. On the west of the Túngufjót there are still two influents, badly shown in the map, which form a watershed of their own, flowing down troughs which often obscure them from sight, parallel with and eventually feeding their main stream. This secondary feature is bounded eastward by a dwarf divide, a shallow arch of ground, and westward by the Laugarfjall, an insulated node of degraded phonolite and heat-altered trachyte, which has been driven through the Palagonite.¹ This rock islet, a few hundred feet high, with its two green knobs, is divided by a stony precipice, and by a low, marshy, stream-cut valley from the western range (Laugarfjall), of which it is an outlier; and it curves with its concavity open to the rising sun.

On the eastern slope of the trachytic pile and extending round the north of the rock-wall are the Hvers and Geysirs. Nothing can be meaner than their appearance, especially to the tourist who travels as usual from Reykjavik; nothing more ridiculous than the contrast of this pin's point, this atom of pyritic forma-

¹ This is the "low trap hill" of former travellers, supposed to be one of the veins that pierced the elevated diagonal.

tion, with the gigantic theory which it was held to prove, earth's central fire, the now obsolete dream of classical philosophers and "celebrated academicians;"¹ nothing more curious than the contrast between Nature and Art, between what we see in life and what we find in travellers' illustrations. Sir John Stanley, perpetuated by Henderson, first gave consistence to popular idea of "that most wonderful fountain the Great Geysir:" such is the character given to it by the late Sir Henry Holland, a traveller who belonged to the "wunderbar" epoch of English travel, still prevalent in Germany. From them we derive the vast background of black mountain, the single white shaft of fifty feet high, domed like the popular pine-tree of Vesuvian smoke, the bouquet of water, the Prince of Wales feathers, double-plumed and triple-plumed, charged with stones; and the minor jets and side squirts of the foregrounds, where pigmies stand and extend the arm of illustration, and the hand of marvel.

In this little patch, however, we may still study the seven forms of Geysir life. First, is the baby still sleeping in the bosom of Mother Earth, the airy wreath escaping from the hot clay ground; then comes the infant breathing strongly, and at times puking in the nurse's lap; third, is the child simmering with impatience; and fourth, is the youth whose occupation is to boil over. The full-grown man is represented by the "Great Gusher" in the plenitude of its lusty power; old age, by the tranquil, sleepy "laug;" and second childhood and death, mostly from diphtheria or quincy, in the empty red pits strewn about the dwarf plain. "Patheticum est!" as the old scholiast exclaimed.

It is hardly fair to enter deeply in the history of the Great

¹ Especially M. Dortous de Mavian, whose theory was succeeded by the age of chemicals, pyrites, and alkalis, and the oxidation of unoxidised minerals, with a brief diversion in favour of "The Fire," by Sir Humphrey Davy. Poisson extinguished it when he remarked that if fed by incandescent gases it would burst the shell, or at least would be subject to tides, causing daily earthquakes. Happily, also, the term "earth's *crust*" is also becoming obsolete, or rather the solid stratum of 100 miles overlying a melted nucleus has suddenly grown to 800 (Hopkins). Sir William Thomson (Proceedings of the Royal Society, xii., p. 103) holds it "extremely improbable that any crust thinner than 2000 or 2500 miles could maintain its figure with sufficient rigidity against the tide-generating forces of sun and moon, to allow the phenomena of the ocean tides, and of precession and nutation, to be as they are now." We will hope for more presently.

Geysir, but a few words may be found useful. The silence of Ari Fróði (A.D. 1075), and of the Landnámabók, so copious in its details, suggests that it did not exist in the eleventh century; and the notice of Saxo Grammaticus in the preface to his History of Denmark proves that it had become known before the end of the thirteenth. Hence it is generally assumed that the volcanic movements of A.D. 1294, which caused the disappearance of many hot springs, produced those now existing.¹ Forbes cleverly proved the growth of the tube by deposition of silex on the lips,² a process which will end by sealing the spring: he placed its birth about 1060 years ago, which seems to be thoroughly reasonable; and thus for its manhood we have a period of about six centuries.

In 1770 the Geysir spouted eleven times a day; in 1814 it erupted every six hours; and in 1872 once between two and a week. Shepherd vainly waited six days; a French party seven; and there are legends of a wasted fortnight. The heights are thus given by travellers:

Ólafsson and Pállsson (1770-72),	360 feet.	
Von Troil (1772),	92 "	
Stanley (1789), measured with a quadrant,	96 "	
Lieutenant Ohlsen (1804), mentioned by Henderson, also with a quadrant,	212 "	
Hooker (1809), upwards of a	100 "	
Mackenzie (1810),	90 "	
Henderson (1815),	60-80 "	} second visit, } above 200 ft.
Barrow (1834),	80 "	
Pliny Miles (1854),	70-72 "	
Forbes (1860),	60-100 "	
Symington (1862),	200 "	
Baring-Gould (1863),	90-100 "	
Bryson (1864),		
Robert Mackay Smith (1864),		"as high as the Scott Monument."
		100 measured feet.

¹ Cleasby tells us that the end of Arna Saga (the bishop), the sole historical work of that time, is lost. He opines that a certain "pretty legend," referring to the "moving" of founts when defiled with innocent blood, could not have arisen "unless a change in the place of hot springs had been observed."

² Everywhere we found leaves laminated with silicious deposit, but no trace of shells, even though we sought them under the turf. The composition of Geysir water will illustrate Forbes. In 1000 parts of water there are 0.5097 of silica, whereas the rest, carbonates of soda and ammonia, sulphates of soda, potash, and magnesia, chloride and sulphide of sodium, and carbonic acid, amount only to 0.4775. Out of the latter, again, soda represents 0.3009, and sodium 0.2609; silica and soda are therefore *the* constituents. The specific gravity is 1000.8 (Faraday).

Thus the mean of the best authorities would be 80 feet, exactly equal to the *Grandes Eaux* of Versailles. The artificial maximum is popularly laid down at 90 feet. But torpedo experiments with 100 lbs. of picric powder have lifted a 2000-ton column 53 yards high; and we hear of pillars 50 feet thick reaching 123 yards. The Giant Geysir, a silicious spring near the head of the Firehole River, according to Dr F. V. Hayden, propels an 8-foot shaft by steady impulses from 150 to 200 feet from the orifice.

The shooting action of the Geysir, an affair of 700 horse-power, has been explained in four distinct and several ways: by a reservoir, by a straight tube, by a bent tube, and by no tube at all. Furthermore, one experimenter applies fire to the centre of the tube, another cold, whilst a third heats the angle. Mackenzie suggested the "hypothetical subterranean cave" which was adopted by all the writers of his day; by Scrope, Dufferin, the Napoleon Book, and many others. They all forget that the reservoir and the syphon would produce regular and not intermittent action.

The epoch-marking visit of Professor Bunsen proved, by soundings, the Geysir to be a regular tube, 60 to 74 feet deep, with a diameter of 10 feet 4 inches: he found the temperatures by *termometres à deversement* varying to a maximum of 270° (F.), or 58° above boiling point; and Mr Bryson (1864) verified these observations, making the bottom of the pipe 240°, and the centre 270°. Superheated water loses the cohesion of its particles with the expulsion of air, and, if pressure be removed, "flashes into steam;" this well-known fact at once suggested the chemist's explanation. Thus M. Müller was able to make an artificial Geysir; M. Douay of Ghent corked a straight brass tube, and caused explosion by heating it at the bottom and at half length; and Professor Tyndall followed with his pipe of galvanised iron, 6 feet long, surmounted by a basin, and girt about the centre with burning gas. Even the detonations were imitated; those of the model were explained by steam being condensed in the saucer, whose diameter is 52 to 60 feet, and whose contents are cooled by abundant evaporation—the same phenomenon on a small scale will be observed if water be heated in a bottle.

Whilst the far-famed Werner held that volcanoes were caused by the burning of coal-beds, George Stephenson, a great and original mechanical genius, more Wernerian in this point than the master himself, was so impressed by the rhythm and regularity of movements as he first sighted a volcano that he at once referred them to steam and superheated water.

But presently observers raised the valid objection that if air were liberated in large quantities, the Geysir surface would be ever boiling like that of the "Strokkur." Hence Baring-Gould suggested that an angle in the pipe is sufficient to produce all the phenomena, and he calls the following experiment "merely an adaptation of Sir George Mackenzie's theory." Bend an iron tube to 110° , making one arm half the length of the other; fill with water, and place in the fire. For a minute the liquid will remain quiet; presently it begins to quiver; steam generated in the shorter section causes a slight overflow, without signs of ebullition, till the bubble turns the angle: the column of the longer arm is then suddenly forced high in the air, and a jet of eighteen feet can be produced with a tube, whose long arm measures two feet, and whose bore is three-eighths of an inch. The bending pipe is given by Forbes (p. 252), but he has drawn no conclusions from it.

Finally, Dr Hochstetter (*Revue Hebdomadaire de Chimie*), whose highly interesting experiments throw much light upon volcanic action, can almost dispense with a pipe. When sulphur is melted under water, with a pressure of forty-five pounds to the square inch, the mineral absorbs part of the fluid, and as the former cools, the latter is driven out as steam accompanied by explosions. When the quantity of sulphur is excessive, upheavals take place, craters are formed, and melted brimstone is ejected.

Evidently the several theories require reconciling. A friend wrote to me: "Your suggestion of emptying the Geysir can be done only by a force pump. The long arm of a syphon would require to measure upwards of a hundred yards to find a lower level than the bottom of the tube, which lies eighty-six feet below the upper basin-rim. And even if you succeed, we shall learn very little more than what we already know, or we have reason to assume." I rejoin that the position of the spring which fills

the Geysir after each explosion, and which keeps up the constant flow over its saucer, is a matter of the greatest importance.

Ólafsson produced a new "Gusher," by simply piercing through eighteen feet of sulphur ground at Krísvík; and in Tuscany there are artificial *soffioni*, one of which has been driven 168 metres into strata showing 145° (Centig.). In the present state of science we evidently need not despair of being able to create a Great Geysir upon the grandest scale: these eruptions come from earth's skin not from her intestines; and the subterranean laboratories of metallic bases are readily opened to oxidation.

Remains now only to walk over the ground, which divides itself into four separate patches: the extinct, to the north-west, below and extending round the north of the Laugarfjall buttress; the Great Geysir; the Strokkur and the Thikku-hverar to the south.

In the first tract earth is uniformly red, oxidised by air, not as in poetical Syria by the blood of Adonis. The hot, coarse bolus, or trachytic clay, soft and unctuous, astringent, and adhering to the tongue, is deposited in horizontal layers: snowy-white, yellow-white, ruddy, light-blue, blue-grey, mauve, purple, violet, and pale-green, are the Protean tints; often mixed and mottled, the effect of alum, sulphuric acid, and the decomposition of bisulphide of iron. The saucer of the Great Geysir is lined with Geysirite (*silica hydraté*), beads or tubercles of grey-white silica; all the others want these fungi or coral-like ornaments. The dead and dying springs show only age-rusty moulds and broken-down piles, once chimneys and ovens, resembling those of Reykir, now degraded and deformed to couthless heaps of light and dark grey. Like most of the modern features, they drained to the cold rivulet on the east, and eventually to the south. The most interesting feature is the Blesi (pronounced *Blése*), which lies 160 feet north of the Great Geysir. This hot-water pond, a Grotta Azurra, where cooking is mostly done, lies on a mound, and runs in various directions. To the north it forms a dwarf river-valley flowing west of the Great Geysir; eastward it feeds a hole of bubbling water which trickles in a streak of white sinter to the eastern rivulet and a drip-hole, apparently communicating underground with an ugly little boiler of grey-

brown, scum-streaked, bubbling mud, foul-looking as a drain. The "beautiful quiescent spring" measures forty feet by fifteen,¹ and is of reniform or insect shape, the waist being represented by a natural arch of stone spanning the hot blue depths below the stony ledges which edge them with scallops and corrugations. Hence the name; this bridge is the "blaze" streaking a pony's face. Blesi was not sealed by deposition of silex; it suddenly ceased to erupt in A.D. 1784, the year after the Skaptár convulsion, a fact which suggests the origin of the Geysirs. It is Mackenzie's "cave of blue water;" and travellers who have not enjoyed the *lapis lazuli* of the Capri grotto, indulge in raptures about its colouration. North-west of the Blesi, and distant 300 feet, is another ruin, situated on a much higher plane and showing the remains of a large silicious mound: it steams, but the breath of life comes feebly and irregularly. This is probably the "Roaring Geyser" or the "Old Geyser," which maps and plans place eighty yards from the Great Geysir.

The Great Geysir was unpropitious to us, yet we worked hard to see one of its expiring efforts. An Englishman had set up a pyramid at the edge of the saucer, and we threw in several hundredweights, hoping that the silex, acted upon by the excessive heat, might take the effect of turf; the only effects were a borborygmus which sounded somewhat like B'r'r'r't, and a shiver as if the Foul Fiend had stirred the depths. The last eruption was described to us as only a large segment of the tube, not exceeding six feet in diameter. About midnight the veteran suffered slightly from singultus. On Monday the experts mispredicted that he would exhibit between eight and nine A.M., and at one A.M. on Tuesday there was a trace of second-childhood life. After the usual eructation, a general bubble, half veiled in white vapour, rose like a gigantic glass-shade from the still surface, and the troubled water trickled down the basin sides in miniature boiling cascades. Thence it flowed eastwards by a single waste-channel which presently forms a delta of two arms, the base being the cold, rapid, and brawling rivulet: the

¹ More exactly the two divisions are each about twenty feet long; the smaller is twelve and the greater is eighteen feet broad; the extreme depth is thirty feet.

northern fork has a dwarf "force," used as a *douche*, and the southern exceeds it in length, measuring some 350 paces.

We were more fortunate with the irascible Strokkur, whose name has been generally misinterpreted. Dillon calls it the piston, or churning-staff; and Barrow the "shaker:" it is simply the "hand-churn" whose upright shaft is worked up and down—the churn-like column of water suggested the resemblance. This feature, perhaps the "New Geyser" of Sir John Stanley and Henderson, formerly erupted naturally, and had all the amiable eccentricity of youth: now it must be teased or coaxed. Stanley gave it 130 feet of jet, or 36 higher than the Great Geysir; Henderson, 50 to 80; Symington, 100 to 150 feet; Bryson, "upwards of a hundred;" and Baring-Gould, "rather higher than the Geysir." We found it lying 275 feet (Mackenzie, 131 yards) south of the big brother, of which it is a mean replica. The outer diameter of the saucer is only 7 feet, the inner about 18; and it is too well drained by its silex-floored channel ever to remain full. A funnel or inverted cone, whereas the Great Geysir is a mound and a cylinder, it gives the popular idea of a crater: the upper bore is 8 feet 4 inches to 9 feet, the depth 44 to 49, and about half-way down it narrows to 11 inches. The surface is an ugly area of spluttering and even boiling water. A "fulminating dose" of twenty-four turfs and stones, with three by way of "bakhshish," brought on the usual tame display of "bouquets d'eau in sheaves, gerbes, lanceolations, and volutes," the highest rising at most 40 feet: travellers give twelve minutes for the operation, others see it "almost instantaneously;" we had to wait more than an hour. Bryson explains (pp. 44, 45) the action of turf by its organic matter causing violent ebullition, like the mucus or albumen of eggs, which make the pot boil over, or like the vesicles in foam or custard-confining atmospheric oxygen. But a second experiment with stones only, and the want of suddenness in the outburst, made us fall back upon the homely old theory, namely, that stopping the narrow tube enables the water to overcome the pressure of the upper column. The French expedition, after duly "activising it," fired a shotted gun at the surface of the Strokkur, which is said at once to have ceased boiling.

The most interesting part to us was the fourth or southern tract. It is known as Thikku-hverar, thick caldrons (hot springs), perhaps in the sense opposed to thin or clear water. Amongst its "eruptiones flatuum," the traveller feels that he is walking

"Per ignes,
Suppositos cineri doloso."

There are at least fifty items in operation over this big lime-kiln; some without drains, others shedding either by sinter-crusted channels eastward or westward through turf and humus to the swampy stream. It shows an immense variety, from the infantine puff to the cold turf-puddle; from Jack-in-the-box to the cave of blue-green water, surrounded by ledges of silex and opalline sinter (hydrate of silica), more or less broad: the infernal concert of flip-flopping, spluttering, welling, fizzing, grunting, rumbling, and growling never ceases. The prevalent tints are green and white, but livelier hues are not wanting. One "gusherling" discharges red water; and there is a spring which spouts, like an escape pipe, brown, high and strong. The "Little Geysir," which Mackenzie places 106 yards south of the Strokkur, and which has been very churlish of late years, was once seen to throw up 10 to 12 feet of clean water, like the jet of a fire-plug. The "Little Strokkur" of older travellers,¹ a "wonderfully amusing formation, which darts its waters in numerous diagonal columns every quarter of an hour," is a stufa or steam-jet in the centre of the group, but it has long ceased its "funning."

Here we tried our final experiment. The small spring farthest to the south-west, and about 310 feet from the Strokkur; raised upon a little platform of silicious laminae, and draining southwards, has two distinct issues, one nearly circular (1 foot by 10 inches), and the other long-oval (1 foot by 6 inches), distant 2 feet 2 inches, but apparently communicating; the depth is 11 feet, after which soundings are prevented by irregularities. We blocked up both apertures with well-tamped turf. The

¹ See Barrow's ground-plan of the Geysirs (p. 177).

northern remained closed. After forty minutes, the southern began to play; it threw up gerbes some 30 feet, which showed fragments of "Geysir rainbow," and this lasted at least an hour and a half, after which it was completely exhausted; its earths were stopped next morning, but during six hours there were no results. Simultaneously with this eruption, and reminding us of Horrebow's sympathetic water, the Red Mouth, a dwarf basin some 440 feet to the south-east, into which we had also thrown stones, began to play. This experiment suggested considerable doubts as to the general applicability of all existing theories. Another point which still remains for inquiry is that of the Salses or cones emitting slime and hydrogen. In the United States it is supposed that these "mud-puffs" begin as clear Geysirs, or as boiling springs, and that they become thicker and thicker till the heat dies out, when the fetid matter no longer appears. As far as I know, the theory has never been applied to Iceland.

I cannot but hold the Geysirs, in their present condition, to be like Hekla, gross humbugs; and if their decline continues so rapidly, in a few years there will be nothing save a vulgar solfatara, 440 by 150 yards in extent. But, luckily for the sight-seer, facilities of travel increase in still greater proportion. A few will visit the jetting boiling water near the beautiful Lake Roto-ma in New Zealand, made known to us by the Curse of Manaia. Many will picnic to the "Grand National Park" of the Yellowstone, where, as in the new hemisphere generally, every feature, lakes and cataracts, forest and cañon, is on a scale unknown to the old.¹ Here the Mud Geysir (Firehole Basin) is a greater Strokkr; the Mud Puffs are the Thikku-hverar *en grand*; and the silicious mound of the "Giant Geysir" is so broken that its sinuous orifices expose the boiling water forty feet below, and its paroxysms have lasted three hours.

After this depreciatory notice of another "Wonder of the

¹ In 1859, when I passed over the Rocky Mountains, near the headwaters of the Missouri and the Yellowstone, the North American Geysirs had not been invented, nor did we hear a word about them from the backwoodsmen and prairie-men along the line. In fact, the United States Expeditions which surveyed, photographed, and described them, began only in 1868.

World," it is only fair to the reader that he should be supplied with a description of it by a more enthusiastic pen.

"I was particularly fortunate," writes a friend from Edinburgh, "in witnessing two grand eruptions of this magnificent fountain: the first from its commencement till its close.

"By the favour of the Danish Government, the 18-gun ship 'Thor' received six travellers on board in Leith Roads on the 18th of June 1855. My friend the late Dr Robert Chambers, in his 'Tracings of Iceland and the Faroe Islands,' gives an interesting account of our voyage, of a boat trip with him and a friend through the Faroe group, and of our ride to the Geysers.

"We arrived at Reykjavik on the 27th, having difficulty in getting a pilot to come on board the monster that could sail against wind and tide, the 'Thor' being the first steamer that had appeared in Iceland waters.

"After a ball at the Governor's on the evening of the 28th, we started in the morning for Thingvellir, accompanied by Captain Raffenberg, three officers of the 'Thor,' our kind host and entertainers, and by young Count Carl Trampe, son of the Governor, with forty-one horses, and arrived on the field of the Geysers in the evening of the 30th. Shortly before, as we were descending to the ford of the river, a column like smoke was observed in the distance before us; this, as we afterwards learnt, was from Geyser—one of his great displays.

"A little tent pitched near the great Geyser was not proof against the pelting rain, but I was glad to get a friend to share it, the rest of the party taking refuge at the neighbouring farmhouse.

"The night was dark, with heavy rain. Geyser (as he is emphatically called by the Icelanders) gave no sign.

"The first of July was warm and bright.

"There were several eruptions during the day, making me familiar with his operations, but there were none of them to any great height, lasting only for two or three minutes: the basin not quite emptied.

"Several eruptions of Strokkur were witnessed, two of them by giving him a dose of turf: the prescription discovered by Henderson. These were a series of violent explosions, without

any warning; the first burst went up like a rocket fifty or sixty feet, followed in such quick succession lower and higher than frequently the ascending mass passed through the descending waters, falling outwards on all sides. During the ten minutes they lasted, a stream of boiling water was given off only inferior to that of the Great Geysir.

“The last shoot into the air was generally the highest.

“It is not quite safe to be near this fellow in his spasmodic pranks, but they cannot be looked upon without amazement. The action is altogether different from that of the orderly majestic movements of the great King of all the Geysers, with whom he has evidently no connection.

“In his normal state, eight feet down from his not very pretty mouth, the water in Strokkur is always in violent ebullition.

“The estimate we formed of the extreme height of the sheaves of water was above 100 feet. In order to assist in the computation, we had measured that distance to the ground where we stood. The more practised eyes of the naval officers agreed in this estimate.

“It was now eleven P.M.; the sky as clear as day.

“With the exception of my tent friend and a companion, who had gone to visit the Little Geysir, the rest of the party had left for the night.

“Standing on the edge of the basin to windward, assisted by the Hoffmeister in measuring the line I had stretched across it at different points, several heavy thumps were felt under our feet, followed by earthquake movement, and the rolling sound, so often described, coming from a distance to the south. My assistant had thrown down the lines and fled.

“The water in the basin was as smooth as glass, the slight vapour rising being carried to the south-west, when suddenly in the centre of the basin over the well or pipe (10 feet 4 inches in diameter, as afterwards measured) the water rose, through the water in the basin, to the full circumference of the pipe (31 feet), to the height of about 3 feet.

“The column appeared for an instant as if a solid body, immediately falling into the basin, and ruffling its surface with a series of waves.

“Lord Dufferin, in his charming ‘Letters from High Latitudes,’ in happy illustration of this phenomenon adds in a foot-note:

‘As if an angel troubled the waters.’

“Again, the water rose 5 or 6 feet, falling as before, creating a little storm in the basin, and rushing out at the two openings in the rim, the one on the north-east, the other on the east. By the third and fourth rise of these columns, following each other with increasing rapidity, the boiling water came tumbling like a cataract over the basin and down the mound on all sides. Compelled to retire a little distance, columns of water were now dimly seen following each other with loud noise, as they rushed through the tube into the air, each succeeding column higher than the one before it. These were now a series of explosions, giving off enormous clouds of steam, black from their density.

“My two friends then joined me and witnessed this rare sight in all its grandeur. The display lasted for about seven minutes from the commencement.

“Immediately after the last and highest explosion, the flow down the sides of the mound suddenly ceased, and running up and into the basin, we found it empty, and the water standing some ten feet down, the tube gradually filling again.

“The Hoffmeister of the ‘Thor’ had returned, and throwing some stones into the well, myriads of steam bubbles were disengaged, and rose to the surface, making him run again for his life from the wrath of the demon he had thus provoked.

“*2d of July.*—Fast asleep in the tent at six in the morning. I was roused by the underground thundering to the south: my friend, who was up, had looked out and thought it was only an abortive attempt; the noise continued, accompanied by the sound of rushing waters near us. Following my friend, I lost him for a minute or two in the dense mass of steam, which smelt of sulphur, but he speedily joined me in my former position; and before the explosions had attained their highest elevation, the whole party were near us. Their opinion was, that the height the explosions had attained was quite as great as that of Strokkur on the previous day. I was much too near to form any adequate opinion. Rising above the dense clouds of vapour, the

water in columns was distinctly seen opening out at the top into separate shoots at varying heights, the lower curving outwards, the higher shot up perpendicular, and shattered into diamond drops, sparkling in the sun. The well opens up trumpet-shape into the basin, the diameter of the curve being about 2 feet 6 inches. To this it appears to be due that most of the water falls outside its margin.

“From one of the last columns about a third broke off, and, bending between me and the sun, left his image quite black upon the retina.

“Prepared for the close, we had reached the basin in time to see the last portion of its contents running into the well, leaving the basin burning hot, and not a drop of water in it. The well was standing about 12 feet down, the water slowly rising, and taking about 15 minutes again to fill the basin.

“During these eruptions the rush of boiling water never ceased; but uniting to the east of the mound, it flowed down to the river in a continuous stream, in some places 20 yards in breadth.

“Taking the average height of the columns of water at 45 feet, and eight shoots in a minute during a period of eruption of $7\frac{1}{2}$ minutes, the discharge is 1,410,600 gallons; or take one column 80 feet by 10 feet 4 inches diameter, gives 41,797 gallons at one discharge; a shot weighing 186 tons 11 cwts. 3 qrs. 17 lbs. from this great gun, to which the Woolwich Infant is but a babe.

“To the eye, so far as could be seen, the pipe was quite cylindrical; and, plumbed all round, no irregularity was discovered, except at the bottom, which was very irregular, giving to my line a depth of 80 feet on one side, 82 on the other. My tent companion and friend, the late Robert Allan, in a paper read at the meeting of the British Association at Glasgow in 1855, and published in its Transactions, gave the depth 83 feet 2 inches. The diameter of the basin from two points—72 feet 6 inches, 68 feet 1 inch: my four measurements taken twice on the surface of the water gives the average of 66 feet.

“Assembled round the basin, which had now filled, the water smooth and bright, with a thin screen of vapour carried to the south, a curious discovery was made. Standing with his back

to the sun, and looking into the basin, the spectator saw his face and head clear as in a mirror, surrounded by a halo of bright prismatic colours. The coloured rays extended round the head to the distance of 2 or 3 feet, forming two-thirds to three-fourths of a circle, the lower portion wanting. The observer could only see his own likeness, not that of his neighbour.

“The temperature of Geyser at rest varied from 180° to 188° , but no perceptible difference was noticed before or after the explosions.

“The heat of the water may be ascertained very nearly by observing the amount of steam given off.

“During eruptions the water was expelled at a temperature far above the boiling point, as the dense masses of steam clearly showed.

“There was no steam from Geyser, which was not given out from the water itself, during the explosions.

“On examining the basin, little ripple markings were found all over its surface, similar to what are left on the sands of the sea by the retiring tide.

“It was unbroken by sacrilegious chisel and hammer, then busily employed by all three in collecting specimens.

“On my visit three years after, in 1858, some of these rejected specimens were found so firmly cemented in the place they were left that my hammer could not disengage them without tearing up a portion of the rock to which they adhered.

“In the little pools on the sides of the mound films of pure silica were discovered; and on the edge of the little falls of the stream towards the river I got some good specimens of calcedony in process of formation, but they were too brittle to carry safely away.

“On my second visit to the Geysers I was congratulated by Captain Verron of the ‘Artemise’ of being sure to witness a grand eruption, seeing he had been two days there without one; but, storm-stayed for four days, and never out of sight of my tent, I was disappointed. The incessant rain had so subdued the motive powers of action that the Great Geyser seldom rose near half his former height. Strokkur growled, making some praise-

worthy efforts, and the smaller Geysers did their best under such adverse circumstances.

“Among the preparations made I had for ascertaining the temperature of the well of the Geyser:

“1. A cord repeatedly shrunk in hot water, then stretched, and marked every ten feet.

“2. Another to span the basin with a ring in the centre, through which No. 1 was passed.

“The thermometer being attached to No. 1, was let down into the tube every 10 feet successively, and with the help of two assistants on opposite sides of the basin, bringing it home to note the temperature.

“Unfortunately, a Negretti by Stevenson, though in a case, and well protected, got injured during the operation; one of the screws which fastened the glass tube to its case was out, and a bit at the upper end broken off. The injury I found, after all, would not have amounted to more than a difference of 5° to 6° Fahrenheit in temperature, but I had lost confidence in it.

“So far as observed, the temperature rose very nearly in proportion to the depth of the well, from about 188° at the top to about 260° at the bottom.”

The following are the temperature measurements at the Great Geyser, taken on August 6 and 7, 1874, and given on April 29, 1875, at the Royal Society of Edinburgh by Robert Walker, Esq., a Fellow of the Society:

Depth in feet from surface.	Observed temperature (Fahr.).
0 =	187°
10·5 =	190°
18 =	197°
27 =	211°
36 =	243°
39 =	247°
45 =	250°·5
49·5 =	254°
54 =	256°·5
58·5 =	254° (?)
67·5 =	259°·5
77·5 =	257°

“As an example of change in these springs: on the first visit, a pool was found near the Little Geyser, from which a stream ran eastwards, the temperature on the surface was 168°; adhering to the sides thick fleshy leaves of Algæ of a greenish-brown colour were floating. The spot was marked, and three years after the Algæ were gone, all but a little on the sides, the temperature reduced to 139°, the water had sunk down, and the stream had ceased, leaving its former course quite discernible by the grass which covered it being of a lighter green tint than that on each side of its course. To the west, steam issued out of a minute hole: a stroke of the hammer disclosed a little pool in ebullition, but the temperature was only 184°. Is this little fellow destined at some future day to rival his companions?”

“Between the Geyser and the beautiful caverns often described there is an ugly hole about 8 feet diameter, most dangerous, and horrible to look at; unlike all the rest, containing the purest water, it is filled to within 4 or 5 feet of its mouth with a silicious paste of a dark-brown colour, of the consistency of porridge, alternately popling and boiling furiously.

“Visiting Reykir in 1858, we were informed by the pastor that the period of *its* Geyser was just six hours, so we had but an hour to wait. True to time, the water gradually rose with a continuous flow, rising higher and higher during a space of twenty minutes, until it had reached a height of 38 feet. A little instrument, designed by the Astronomer Royal for Scotland, with the aid of a friend from Bo’ness, was sufficient to give this close approximation.

“The charm of the Geyser at Reykir could not be exceeded; the shafts, as they rose, curved outwards all round in perfect symmetry, a tree of live water, throwing off steam, but not sufficient to obscure its marvellous beauty, as the sun played and sparkled among its branches.

“It is difficult to account for these various phenomena.

“Place a glass tube half filled with water over a lamp or gas light. After the water is boiled, it will be ejected by successive spurts; and looking at the bottom of the tube, an air space will be seen, expanding as the water is ejected. This is the explosive material so often referred to, and it is upon this operation

that the diminutive Geysers have been constructed to so far explain the action and time of these water volcanoes.

"The observations made upon these two visits led me to the following conclusions as to the phenomena accompanying the eruptions of the Great Geysir:

"The cavity of Sir George Mackenzie, or boiler, as I shall here term it, I would place from 200 to 230 yards to the south of it, not far from the little Strokkur, from which the sound of underground 'artillery' is heard to proceed. Here it is that the explosive force—highly superheated steam—is generated. Connected with it and the underground passage to Geysir is the reservoir of hot water.

"These underground caverns are numerous over Iceland, Surseitler being the most famous; in it the sides of the cave, a mile in length, are smooth and rounded to the ceiling, evidently formed when the lava was in a plastic state—blown out like the molten glass under the hands of the bottle-maker. From the roof large blocks had fallen, rendering the passage extremely difficult.

"It seems highly probable that the cause of the sharp rattling noise heard during eruption is due to such loose angular masses of lava rock being driven against each other with the force that propelled the rush of waters to the Geysir. The explosive force unequal at first to impel more than a portion of water up the tube, the resistance becomes less as the reservoir gets emptied by its escape up the tube, and so the water is propelled higher and higher to the last. The explosions cease by the steam in the boiler being suddenly condensed, and the vacuum thus created drawing back the water from the passage, and from the basin, and in part from the well. The premonitory thumps were probably caused by the first waves of the rushing mass of water striking against a wall of rock close to the bottom of the well.

"Numerous Geysers worthy of note are scattered all over Iceland, the joint production of water and the subterranean fires which underlie them."

SECTION IV.—TO THINGVELLIR AND BACK TO REYKJAVIK.

The next morning (July 16) saw our departure. The breeze had chopped round to the north, and, perhaps, this change of wind produced the general excitement which we noticed in the springs. Both yesterday and to-day several parties of Icelanders came to see the sights, the women shawled to the ears, despite the hot sun, and with bodices unpleasantly tight-laced by lines of eyelet-holes across the breast. Formerly the people "never passed the Geysir without spitting into it; or, as they say, *utí Fjandans munn*—into the Devil's mouth." We set off at eleven A.M., passing south-south-west to the Laug farm, where some travellers have slept and "lost the eruption," and crossing the filthy swamp, where sheep graze and curlews scream, we forded the little stream which drains between the Laugarfjall and its trachytic outlier. The approach to the thermæ from the south is even meaner than the eastern, a dwarf slope of bright-coloured ground trending from the concave lump to the Túngufljót.

Most of this march is only fit for the itinerary. The path in places becomes like the hollow ways of the Brazil, whose gullies spread over a hundred yards of ground, and the "forest," as on the Anti-Libanus, shows more root than bole, the tree hugging earth, as it were, to save itself from being blown away. The first chapel farm gives an extensive view of the coast features and of the highly picturesque formations, the Jarlhettur rampart, the twin bluffs and spines of Hagafell, and the grim, black isolated castellation of Hljóðufell, outlying the Lángjökull. At about half-past one P.M., warned by a rustling which was mistaken for that of the forest, we came "lickity, lickity, switch," upon the planks of the Brúará or Bridgewater: in Perthshire there is also a Bruar, so called from its natural arch. Gaimard, carefully copied by later writers, shows a plank forty feet long, utterly undefended by "gardefou," and "spanning the depths of a narrow cleft in a precipice," where men "rush for their lives," and where "the danger is at least a hundred feet." Symington was reminded of the Mósi-wá-túnyá (Victoria) Falls, the Niagara of South Africa! The river, classical in Iceland story

for the lynching of Jón Gerikson, the Swedish bishop, here washes over a rocky channel about 160 feet broad. There is a ferry below; higher up a gash, nearly 100 yards long, forms a wedge-shaped crevasse, opening down stream, and a drop of half-a-dozen feet in the bed combines to make a miniature horse-shoe, over which the blue water pours, foaming and mildly roaring. Over the gash is thrown a bridge of twelve planks,¹ some twelve feet broad, and well guarded by iron-cramped rails. Man must lately have suffered from "Dil. Tre." to feel nervous in such a place, and we went our ways laughing.

Shortly after six P.M. we sighted Thingvallavatn, the "monarch of Iceland lakes," an expanse of placid blue, ruffled by the pleasant south. Its two crater-islets are Nesjaey, small and green, near the western shore, and larger Sandey, a two-pronged lump of black stone and green turf, rising a little south of a "Lisán," a dark foreland projected by the eastern shore. Shortly afterwards we came suddenly upon the Hrafnagjá, or Raven's Geo,² whose "startling depths" extend from the snow-patched Hrafnabjörg, or Raven's Crag, about four miles long to the Vel-lankatla, Bay of the Lake. This longitudinal crevasse is the facsimile of a "Ká'ah" in Hauránic Leja or the Refuge; the long parallel lines show corresponding angles, and there is little difference of level between the upper and lower lips of the barranco; in fact, it is the lateral rent to be found, in a smaller scale, upon every lava-field. The arched form is common to such streams, and where the sides find a soft and yielding foundation, and cold contracts the heated mass, it splits on both sides of the major axis, and thus forms chasms, often one or more, upon each flank. Here, at least, no "collapse theory" is wanted.

A fair causeway across the Raven's Rift is made by the fall-ing of many rocks. Upon the lower slopes we found "forest,"

¹ Baring-Gould makes the bridge seven to eight yards long; far too long for single planks.

² Written Ravnegjá, and other barbarous forms. Gjá also has been corrupted to Gaia, etc. The word is found in the Hebrew גַּי, the Greek γᾶια, and the German and Swiss Gau, a district, a canton; it is preserved in the Scottish Geo or Geow: it is the Cornish Hor, and the Skaare of the Færoes, supposed to extend under the sea. It "often denotes a rift, with a tarn or pool at bottom, whence Gil is a rift with running water;" and it is akin to Gîna (χαίνα, A.S. Gînan); Gähnen, to yawn (Cleasby). In Iceland these fosses are split by the hammer of Thor.

which does not exist on the sister formation. We then crossed the eastern or, as it is known in history, the "upper plain;" the surface on both sides of the path is streaked with "Geos," mostly running parallel; we remarked one disposed obliquely to the lay, and the various names given to us were Háffagjá, Hólagjá, and Breðnigjá. At half-past nine P.M. we entered the Thingvellir church: the altar-piece, a Last Supper, is old; the pulpit dates from A.D. 1683; and the loft is not, as usual, a store-room for the farm, but a sleeping apartment for travellers, provided with pillows and mattresses, decently clean. Prófastr Bech was happily absent: his wife sent us forelles and Kaka,¹ thin rye cakes, but Icelandic modesty did not admit of our seeing the lady.

The next morning was spent in prospecting the humble wonders of Thingvellir; the Tingvold of Norway; the Dyngsted of Oldenburg;² the Dingwall of Ross-shire; the Tingwall of Hjaltland; and Tynwald of Dumfries and the Isle of Man. This assembly plain owes all its fame to history; its civilising influence upon the race reminds us of the annual reunions of the Greeks at Delphi, and the Hebrews at Jerusalem. Sentimentalists would restore the obsolete practice, and transfer the legislators from their comfortable hall at Reykjavik to this wild and savage spot—why not propose that the barons of England meet in parliament at Runnymede?

The lake is computed at thirty miles in circumference, and the depth in places to exceed a hundred fathoms. The aspect on a cloudless morning is that of the humble Scotch waters, wanting only gentlemen's seats and a small steamer: here, however, we are in Snowland, and we see it. The depressed plain begins with the rugged delta of the Öxará,³ or Axewater, and runs to the north-east about four miles each way: the limits north and south are mountains and hills, east and west run the

¹ This is evidently the Germ. Kuchen and the Eng. Cake: we can trace it back to the Pers. "Kahk."

² According to Blackwall, the Thingstead in Oldenburg still shows the Doom-ring of upright stones, and the Blót-steinn in the centre.

³ The Axewater, so called because Kettlebjörn, the Old, when prospecting for a residence here, lost his axe. Barrow gives Oxera, which would mean Ox-water. There has been no change in the Thingvellir since the days of the Norwegian colonists.

twin "stone-streams." Maps and plans make all the lava flow to the south-west from Skjaldbreið: this must be an error, as in parts it would flow upwards. I suspect a crater behind Hrafnbjörg, whence issued the double stream, which can be seen from Thingvellir: the two forks circled round that burnt red cone, anastomosed, and formed the Hrafnagjá and two shorter Geos in the eastern half of the same stone-torrent: the latter do not cut the road, but they are visible from every height. The fiery flood west of the plain which forms the Almannagjá (all-men



LÜGBERG AND ALMANNAGJA.

or great rift),¹ is not so easily traced. A traveller might pass a satisfactory week to himself and others by journeying to Skjaldbreið, where a path leads, and by ascending the mountain high enough to map the lava-sources and the streams which form the two Geos.

The popular theory is, that the whole plain, an item of the pyroxenic plateau from Reykjavik to Geysir, has bodily "dropped at once and subsided" to its present level, leaving

¹ Al-manna, genitive plural from an obsolete Almenn (comp. Alemanni), is a prefix to some nouns, meaning general, common, universal. The local name of the great rift near the Althing was given because all the people met upon its eastern flank (Cleasby).

exposed a section of the rent rocks on either side. It reposes solely on the evidence of the two parallel Geos, and I do not see that they bear it out. Both of the inner sides have sunk, not from subterraneous crevassing, but because the strips of ground which subtended them could not bear the weight. Mr Scrope would account for the fosses, not by vertical settlement of superficial lava into any cavity beneath, but by the "simple and usual process, the bulk of the semi-fluid lava-stream, upon the cessation of supply from above, having run out into the depths of the Thingvalla Lake." The normal operation of this movement, however, is to form a tunnel, not an open trough, and this objection is one of the least.

The contrast of mountain and water, as usual, gives a certain picturesqueness to the site. South-east of the lake rises the *Búrfell*, here a goodly presence, and no longer the little cone seen from about *Reykir*; south lies familiar *Ingólfssjall*, and south-west towers the "tall hanging hill," *Hengilshöfði*, famed for sulphur springs; snow-streaked, blue-tinted, and shaped somewhat like an elephant's head. Wheeling round to face north-west, we see the pinnacles of *Súlarfell*, bristled as with trees; the fretted peaks about *Gagnheiði*; the dull black heap of *Ármannsfell*, so called from *Orman* the Irish giant, who there lies in his grave; and the ridgelet of *Jornkliff*, crouching below it. There to north-east stands *Skjaldbreið*, shield-shaped as its name says, ending in a snow-flaked umbo which suggests a crater. The peaks of *Tindaskagi* at its foot apparently connect with the great *Hrafnabjörg*; and far behind them, but brought near by the surpassing atmospheric clearness, sparkle the snows of *Lángjökull*. The eastern view ends with the quaint serrations of *Dímon*, which may be either lava blisters, or the lips of a true crater, with the long buttress-like promontory of *Arnarfell*, and with the background heights of *Miðfell*.

Dasent's "Topography of the Thingfield,"¹ will confine our notices of details to a narrow range. We inspected the *Ellstone* or *Fathom-stone*, a block of vesicular lava, 4 feet 9 inches high, opposite the church door, and planted upon a rubble foun-

¹ A large plan, but not very correct, is given by *Dufferin* (p. 73).

dation. The six lines upon the east face measure 1 foot 9 inches, 11 (10·50), 8, 7, 5, and 4 inches; they may be standards, but they look like the work of nature. We then walked up to the grassy site of the Althing, and that local Sinai, the Lögberg or Moothill, the latter a natural stone-mound to the north. Parliament was formerly held on an island; it was for the best of reasons transferred here, where the public was railed off by deep chasms, and where hon. members could be attacked only by a single gateway. So the Shetland Tingwall (Thingvölr) was held on a holm,¹ accessible only by stepping-stones, and the Thing-booths were on the lake-plain. East is the Hrossagjá, and 20 yards west, the Nikolásagjá,² with the smaller Brennrugjá below the latter. These miniatures of the two great rifts, distant about a mile and a half from the lake, are of crumbling sub-columnar black rock, varying from 16 to 40 feet in breadth, and falling sheer some 30 feet to clear blue-green water, whose depths show detached blocks of lava. The two former unite to the north, the second and third to the south, enclosing a long oval with a natural bridge, a few feet wide, to the south-east. We admired the leap, worthy of Morton and the Black Linn, by which Flosi escaped the "blood-stone;" this article was shown to us on the western bank of the Hrossagjá, a detached slice some 12 feet long, whence the victim would fall into the "Geo." Below to the west lay the lower Öxará, which has probably changed all its features since Njál's day. Yet the guides still point out the islet, where holm-gangs were fought in presence of the multitude;³ and amongst the sand-banks formed by ankle-

¹ I believe it has been transferred by later antiquaries from the holm to the mainland; but Cowie (p. 178) still keeps it in the islet.

² This Gjá is amazingly exaggerated by Baring-Gould (p. 69); assuming the human figures at only 5 feet, the depth of the chasm would be 75.

³ For the code of honour in pagan Iceland, Dasent refers to Kormak's Saga, chap. x., where the law of the duello was most punctiliously laid down as the "British Code of Duel" (London, 1824) by a philanthropic and enterprising Irish gentleman. The weapons chiefly used were broadsword and battle-axe; the combatants might not step back beyond a given space, and the latter peculiarity is still preserved in the hostile meetings of students throughout Northern Germany, where the floor or ground is marked with chalk. In some cases they stood upon a hide and were not allowed to gain or to break ground. The Hólm-ganga was a "judicium Dei," differing from the Einvígi, or simple duel, by the rites and rules which accompanied it. The Norwegian duel was worthy of the Scithofinni; the combatants were fastened together by the belt, and used their knives till one was killed. How pugnacious the old pagan Scandinavians were, may be judged from

deep rivulets, the "Thorleifshólmr," upon which criminals were beheaded.

I passed the greater part of the morning examining the Almannagjá, whose total length is about two miles,¹ and the average breadth 100 feet. Ascending the outer or eastern edge by a slope of 20°, I found the upper strata to be ropy, treacly, and scoriaceous lava, whilst below and inside the couches are hard and crystalline. There is a slip in the "Topography of the Thingfield" (p. cxxvii.), where it says, "about a mile and a half from where the great rift touches the lake, its inner lip ceases," and the "Enlarged Plan" makes it break off where it is very distinctly marked. The sole was a mass of *débris* fallen from the sides, and good pasture streaked with many a path. Up the chasm there are rude dry walls of mortarless stone, the Makfl of the Syrian goat-herd, and serving as Sæters for sheep—the guides declare them to be the Búðir of the old Thingmen, but their booths did not extend north of the river. The upper or western wall, whose crest is weathered into pinnacles, varies from 80 to a maximum of 100 feet, whilst the lower ranges from 30 to 50; both are perpendicular and show stratifications which seem to proceed from a succession of discharges.

The Axewater, above the "Geo," is a stream like an English rivulet, flowing through a wild and desolate Heiði. It tumbles over the western lip by a gap about 50 feet high; here the layers of lava are well defined on both sides, and it is easy to climb up either flank of the toy cascade. This fall was sighted during the last march, and suggested great expectations as the foot was hidden. M. Gaimard takes the liberty of removing the screen, and showing the whole height prodigiously exaggerated. It does not "explode in a cataract," but falls decently into a font-like kieve, and threads the sand and boulders of the Geo. After a few yards it finds a gap in the inner lip, and here it dashes towards the plain with two falls, mere steps in the rock. In the lower basin, "sack-packed wretched females"—the author must

the wife's practice of carrying the husband's shroud to weddings and "merry makings."

¹ Pajkull gives the length, one geographical mile, and the maximum depth, 140 feet; too short and too deep.

have been dreaming of the Bosphorus—were let down by ropes and drowned as a punishment for infanticide. Farther on, witches were burned; less lucky than other travellers, I could not find their bones. After thus bisecting the Geo from north-west to south-east, the Axewater runs along its eastern base, and enters the Thingvallavatn. The latter is drained to the south-east by the Sog (inlet) outlet, which eventually feeds the Ölfusá or lower Hvítá; it may be reached in five hours' sharp riding from Thingvellir, and in about double that time from Reykjavik. Here in July any quantity of salmon-trout may be caught; the fish lie above the first foss thick as water-plants. My informant had taken twenty-five in one day; the heaviest was 7 lbs., and only two weighed under 6 lbs.; but he had been almost blinded by the plagues of gnats and flies, which covered his pony with blood-points.

In the afternoon we rode merrily "home." The road began by fording the Axewater, after which was a rude causeway of basalt, about thirty feet long, ascending the eastern lip. It crossed diagonally the grassy surface of the "Geo," and climbed the western wall. A short ramp, paved for beasts, like a bad flight of steps, runs between the true rampart and a slice of rock which has been parted from it. Travellers usually sight it from above, hence we read of the "frightful dangerous chasm," and we are told (N.B.—*not* by an Irishman) that "this is perhaps the most unique scene in the world." The moderns compare it with the "Devil's Staircase" in the Pass of Glencoe. The path would hardly startle the most nervous girl, and a Harfushi horseman would gallop his Arab up and down it.

Reaching the summit, we spurred across the Mossfellsheiði, which those fresh from home describe as a "horrible stony waste, bordered by lofty mountains." But we had met with worse things than this "ever-to-be-avoided heiði," where, moreover, labourers were working at the road. Seen in bad weather, it must be grim enough, as the many "stone-men" show; hence, doubtless, general complaints about the "mournful wail of the plover, and the wild scream of the curlew."¹ We found a

¹ The curlew (*Scolopax arquata*), when young, is apparently called a whimbrel (*Numenius phaeopus*) in the London market.

number of these birds, besides sandpipers, purple oyster-breakers, whimbrels, whose "soft fluid jug," according to the "Oxonian," "is not unlike the nightingale's song," and a fair scatter of ravens. I proposed a turkey-buzzard on a blasted tree, proper, as the arms of Dahome, and Grip on a lava pinnacle would suit Iceland passing well.

The only interest of this day's ride is, that it crosses the "great trachytic band" opposed to the lesser trachytic band of Snæfellsjökull; the former made by old writers to stretch clean across Iceland from near Reykjanes (south-west) to Langanes (north-east). We examined a few veins of that rock, but the surface was mainly lava above and Palagonite below. The latter is said to be remarkably well developed in the Seljaland gorge,¹ and we dismounted to secure red specimens, and to find, if possible, an Irish rose. This feature, I suppose, is one writer's "vast precipice, where there is only about sixteen inches to tread on," and the "deep ravine, wild, horrid, and frightful," of another pen, whose pencil supplies it with a herd of deer.

As we drew near Reykjavik the sun, after shimmering horizontally along the ground, obliged us by occasionally setting behind the hills, and when it

" Burned

The old farm-gable, we thought it turned
The milk that fell in a babbling flood
Into the milk-pail, red as blood."

The moon arose with a judicious repression of details: the silver light, the dark purple brooding at the hill-feet, and the gleam of the golden west gave more colour than usual to the view. The ponies, under boxes now empty, seemed to fly as they scented home. The only difference in the familiar scene was a vast eruption of peat-stacks, made, like hay, whilst the sun shines. Shortly before midnight we were again at home: in Iceland there are no hours, and kind-hearted Frú Jonassen did not keep us waiting either for supper or for bed.

¹ It is analysed by Bunsen (Art. II., loc. cit.).

ITINERARY FROM REYKJAVIK TO HEKLA AND THE GEYSIR VIA KRÍSUVÍK.

REYKJAVIK TO KRÍSUVÍK.

Monday, July 8, 1872.

Left Reykjavik at A.M. 11.30. Rounded heads of two dwarf Fjörðs (1 P.M.), Fosvogr and Kópavogr (seal-cub voe); turf at valley-heads.

1.45 P.M.—Hafnafjörð = 2 hours 15 min. riding; path tolerable up torrent bed; crossed first divide of rugged ropy lava; path bad.

3.20 P.M. (= 3 hours 50 min.).—Changed horses in grassy cup-shaped hollow, under broken wall of lava.

3.30 P.M.—Started again; at 4 P.M. forded Kaldá (cold water) River.

4.45 P.M.—Short halt on grassy bottom at foot of Lángahlíð.

6.30 P.M. (= 7 hours).—Kleifarvatn (cliff-water); path along western shore of lake.

7.15 P.M.—Left lake; over bog and up hill.

© I. 8.30 P.M.—Reached Krísuvík (Bay of Krísa, proper name of woman), 5 hours + 3.50 = 8 hours 50 min. Frequent halts and delays with pack-saddles. At most 3 miles per hour by 9 = 27 indirect statute miles. People call the distance "10 to 15 miles." Road upon map, 16 direct geographical miles from Reykjavik to Krísuvík. General direction, north to south with a little westing.

Good, grey, travelling day; no sun and no rain till night.

Paid at Krísuvík, \$1, 3m. 0sk. (the cheapest).

KRÍSUVÍK TO LITLALAND.

July 9.

Left Krísuvík 10.45 A.M.; floundered over bog. Great arid plateau of Iceland to left.

11.45.—Crossed rocky divide. Short cut over livid plain of lava; sea to right; road along slopes.

12.45.—Entered great lava-field, which lasted with intermissions throughout day.

1.15 P.M.—Sweet-water lakelet (not shown on map) of Herdisarvík (Her-dís, proper name); first great lava-stream ends.

3.15 P.M.—Rode across Hlíðarvatn, at foot of Lángahlíð, now not open to sea as in map; water brackish. Halted 1 hour near Vogsósar (voe's mouths) farm; gnats and flies. Rode 4 hours 30 min. = $13\frac{1}{2}$ indirect statute miles.

4.15 P.M.—Left Vogsósar. Basaltic sands and shells; thin grass. Then loose sand and old flow of lava; domes, caves, and circular blow-holes, like those of the Haurán. Deep sand, black and red. Rocky divide; went gently over the stones.

7.30 P.M.—Passed Hlíðarendi (not *the* Lithe-end, or Ridge-end) to the left (north); farm under green slope.

Forded streamlet in swampy river-valley; rough causeway; should have crossed at the stone-man farther down.

© II. 8 P.M.—Reached Litlaland; five-gabled farm of Magnús Magnússon. Rode 3 hours 30 min. = 11 indirect statute miles. Total, 8 hours = $24\frac{1}{2}$ indirect statute miles; on map, 19 direct geographical miles. General direction, west to east.

Misty morn. Day like yesterday, but more sun. Wind ranged from south-east to north. At night cirri; show clear day to-morrow.

Paid \$2, 0m. Osk.

LITLALAND TO REYKIR AND LAUGARDÆLIR FARM.

July 10.

Set out 10.30 A.M. Up rise over cindery lava.

11.30.—Road forks, right branch leading to big farm. Took path to left; reached old beach, water-worn galettes lying in long lines. Skálafell above to left (north-west).

11.35.—Right bank of Ölfusá (proper name) valley, higher up called the Sog. Ölfusvatn is the old name for Thingvallavatn.

11.45.—Hjalli (a hillock, much the same as "Hóll;" Cleasby says, "a shelf or ledge in a mountain-side"); chapel farm. Skirted tall Palagonite precipice on left.

1 P.M.—Passed through Níupat (?), filthy Bær, dunghill to pony's knees. Up right bank of Varmá, affluent of broad Ölfusá. Wet riding, water draining and sinking from above. Then white, smooth soil.

1.50 P.M.—Forded Varmá; easy descent and ascent; water to horses' knees. Left baggage animals. Reached Reykir 2 P.M. Morning ride, 3 hours 40 min. by 4 miles = 16 indirect statute miles; on map, 9 direct geographical miles. Direction, south-west to north-east.

Left Reykir 3.40 P.M. Circled round south of hill spine dividing Varmá and Ölfusá. Forded two small streams and trotted over causeway (Brú), here common, with some dwarf bridges. After third stream fine riding along west and south walls of Ingólfssjall. On slopes and at tongue-tip fallen masses of light, lavender-coloured Palagonite, water-worn to shape of volcanic bombs. Crossed two causeways, down slope of Ölfusá valley.

© III. At 6.45, ferry of Laugardælir; spent 1 hour 20 min. in crossing. Reached farm of Sæmund Bjarnarson 8 P.M. Afternoon ride, 3 hours by 5 = 15 miles; on map, 6 direct geographical miles. Direction, north-north-west to south-south-east. Total ride, 6 hours 45 min. = 30 indirect statute miles; on map, 15 miles. General direction, south-south-west to north-north-east.

Weather charming; real enjoyment. Sun clear, not hot; high north-easter; lofty cirri and woolpack. Evening cloudy. Rain at night; wind changed to west and south-west; heat brought bad weather.

At ferry paid \$1, and the bishop paid \$2. Tariff, 10sk. Danish per horse, and 12sk. per man or load. Pays well at this season; travellers by day and night. Englishmen have been asked \$20 and got off with \$12 (rascality of guide?).

For lodging (church) and forage, coffee and biscuits, paid \$3.

LAUGARDÆLIR TO THJÓRSÁRHOLT FERRY.

July 11.

Horses strayed. Left at noon. Over delta-like flat between Hvítá and Thjórsá (bull's water); to north of former, detached hills of Búrfell (a cabochon seen from north and south, and a

hogsback elsewhere), Stóraborg, and Hestfjall, resembling dots. Bog on old lava: stone outcrops at places; wettest part often most solid base.

1.30 P.M.—Hraungerði (lava garth) chapel; two farms 8 miles from ferry; horses and neat cattle.

2 P.M.—Hill dividing Ölfusá and Thjórsá. Rough work; showed lake-country below, and Thjórsá line raised by refraction. Along natural lava-dyke to dismal, dreary moor, all knobs and hummocks. Even ravens avoid it in this weather.

4.30 P.M. (3 hours 30 min. = 18 indirect statute miles).—Halted thirty minutes and changed horses at Lángamýri; large farm-house, one of many; wire fence, two strands, and stripped branches for hedge.

5 P.M.—Remounted. Bad riding.

5.40.—Came upon Thjórsá. Ólafsvellir to left; ferry saves distance, but dangerous in fierce wind. Path along stream excellent, black basaltic sand, at times cut off corners, clay covering sand. Turned from north-east to east. Farms and cattle. Passed Sandlækr and tall riverine islet, Arnesthing. “Rústir,” or ruins, on right. Ponies tired; when leaving river often lost way.

7 P.M.—Country more thickly peopled.

⊙ IV. 8.30 P.M.—At Thjórsárholt ferry-house (3 hours 30 min. = 20 miles). Total 8 hours, varying pace = 46 indirect statute miles; map, 26 direct geographical miles. General direction, west-south-west to east-north-east.

Weather vile, unlike the finest month, July, as possible; forenoon cold; driving rain. At noon stopped. Furious in afternoon. At times drizzle, like hoar-frost on grass by decomposition of light. Rain again violent till end of march.

Paid \$3 for night's lodging and ferry. Tariff, 11sk. per man or pack; on return paid \$1.

THJÓRSÁRHOLT TO NÆFRHOLT FARM.

June 12.

Left Thjórsárholt 10 A.M.; up stream to ferry. Spent 1 hour 30 min. crossing Thjórsá.

11.30 A.M.—Over turf of left (east) valley, like a dwarf prairie; 50 min. Many farms; good land, grassy sward, two to three feet deep. Threads of lava, with dangerous holes and sinks, sometimes covered with grass-turf. In places lava bare and broken. Crossed rivulet.

12.55 P.M.—Stóruvellir parsonage, 1 hour 30 min. = 6 miles; map, 4 direct geographical miles. Direction, south with a little easting. Place afflicted by winds from Sprengisandur, distant two to three days' ride.

2.30 P.M.—Left Stóruvellir with guide. Pastoral scene at foot of Hekla, a pampa. Sheep everywhere; ditto stinging flies throughout the inhabited part, few at Geysir.

3.45 P.M.—Leirubakki farm. Changed guides. After a few minutes reached Vestri (west) Rangá ("wrong" or crooked stream), at the mouth called Ytri (outer or uttermost) Rangá. Forded two preliminary brooks, and tethered horses together for third or main channel, girth deep. Dwarf forest, birch and willows. Then two streams, one a ditch, the other a "lavapés," flowing, like lava, north-east to south-west.

© V. 5 P.M.—Næfrholt (birch-bark copse), last cottage at foot of Bjólfell, western outlier of Hekla. Formerly travellers slept at Selsund farm, south-south-west of Næfrholt.

Afternoon march, 2 hours 30 min. = 12 indirect statute miles. Total of day's ride, 4 hours = 18 indirect statute miles; map, 10 direct geographical miles.

Grey day, like the start; clouds had expended ammunition. Wind south-east. In evening weather doubtful, wind west. Hekla misted over, good sign; travellers often stopped by fogs, and even by snow, in July. Flies suddenly disappeared, wings wetted; not the case with the gnats and midges acting mosquitoes.

Instruments in evening.

Aneroid, 30.24; thermometer, 58° (F.).

Hygrometer, 4° (exceptionally dry).

AT NÆFRHOLT.

July 13.

Ascended Hekla.

Left Næfrholt 8.25 A.M.

Rode down the turf lane; crossed the dwarf stream (lavapés), up right grassy bank, and crossed again. Entered basin of "Unknown Lake"—thin strip of flat land with holes often marked by grass and willows. All "sinks" (sink-holes) and punchbowls, as if limestone country. Last thick vegetation 1500 feet high. Then into dreary region, sand and cinder; powdery red cone of fine cinder on left. Slabs of heat-altered trachyte. Obsidian of two kinds—(1.) Huge blocks of pitchstone found from top to bottom of cone, hard and flinty (Hrafninnu proper); and (2.) Small pieces of "Samidin," or obsidian with crystals of white jasper like that of Tenerife and other places. Bombs showed furious cannonade. Palagonite everywhere *in situ* and in scatters: some contained obsidian.

Made for big, rough lava-stream, rusty and in heaps; in places rapidly degrading, and leaving only core. Ponies sank to fetlock. Hugged left of Steiná (stone stream). After two hours' ride, at 10.30 A.M. crossed hill, reached barren divide too steep for horses.

Aneroid in air, 28.18 (difference, 2.06); thermometer, 92° (in pocket); hygrometer, 2°.

Walked up slope of divide; descended very short pitch of stone and *débris*, steepest bit of whole march. Crossed vein of lava (Sept. 2, 1845) like pulled bread, all slag and clinker; pulverising above. Reached a kind of *couloir*, a rim on left of lava-stream. Black sand and two large tongues of ice-based snow, white and brown, ridged with dirty earth, and dotted with dwarf ice-tables, sable above and ermine below. More ice as we ascended, keeping on the earthy parts. Many halts.

12.20.—Reached crater of 1845. Observed instruments.

Aneroid in air, 26.33 (difference, 3.90); thermometer, 83° (in pocket).

Stiff ascent (15 min.) to First or Southern Crater. At 1.13 P.M. sat down upon its western lip. Walking lasted 2 hours 45 min. Total ascent, 4 hours 45 min.

Aneroid, 25.94 (difference, 3.30); thermometer, 68° (air); hygrometer, 0°.

Passed over ridge, and reached snow; thence to north-east lip of Second or Northern Crater, the apex. Reached highest point 1.53 P.M. Total, 3 hours 13 min. (included halts, not bad for difference 2.56 of aneroid).

Aneroid, 25.62 (difference, 4.84); thermometer, 67°; hygrometer, 0°.

2.30 P.M.—Began descent (walked 1 hour 25 min.).

3.28 P.M.—Lowest snow.

3.45 P.M.—Mounted horses (rode slowly 1 hour 45 min.).

5.30 P.M.—Næfrholt farm. Total descent, 3 hours 10 min.

Total of ascent and descent, 7 hours 55 min. (say 8 hours).

Day clear, sun very hot; air thirsty for man and beast.

Paid guide \$1, 4m. Osk. To house for forage, etc. (two days), \$5.

NÆFRHOLT TO GEYSIR.

July 14.

Long, weary day.

Left Næfrholt 9.40 A.M. Wind drove away flies. Crossed Rangá and five other streams.

12.10 P.M.—Reached Thjórská, 2 hours 30 min. of fast riding—five miles per hour. Ferried over at Thjórskárholt. This third of road good.

1.45 P.M.—Remounted; crossed flat land; two Kálfá; east fork big and west fork small. Bad mosses; rounding foul swamps; one furlong of good path to one mile of bad.

3.45 P.M.—Reached (Eastern) Laxá; reported bad ford; found it very good.

4.10 P.M.—Crossed Laxá valley to Sólheimar (sun-home) farm. Rounded fens and crossed morasses. Passed a made tank for washing sheep—rare luxury here. Foul bog of cotton-grass; deep vein along causeway.

5.20 P.M.—Hruni chapel; 4 hours 35 min. from Thjórsá, fast riding. This third of road moderate.

6.45 P.M.—Left Hruni; road to Geysir now very bad; five fast or seven slow hours; took guide (\$1), or it would have been worse. Went north; road not on map. Crossed ugly wet swamp to Minni Laxá (lesser salmon-river); ford not bad.

Up divide of Palagonite running north-east to south-west. Rounded and crossed easiest part of another swamp. Causeway. Up another divide showed us valley of Hvítá. West of us smokes of Reykholt, Laugs everywhere. Avoided causeway, because it runs through tún of large farm, Gröf (the pit).

8 P.M.—Changed pack-horses. Ugly swamp and causeway to Hvítá River.

8.20 P.M.—Forded Hvítá stream; the heaviest, but not bad. Up right bank, a wild gorge; guide left us. Through swamps. Entered ugly system of broken ground, rock-walls, earth and stone, faults and dykes.

10 P.M.—Fell into long descent of birch "forest." Long trot. Forded Túngufjót (Tongue, *i.e.*, Mesopotamia or Doab) River.

10.50 P.M.—Reached Geir-hóll farm, then villainous swamp for tired nags. Crossed eastern three branches of the Árbrandsá (upper Túngufjót), all troublesome; and two other foul, flowing fast influents of the right or western bank.

◎ VI. At 12 P.M. reached Geysir.

Total of this day's ride, 12 hours 20 min., at least 50 indirect statute miles; map, 31 direct geographical miles. General direction, south-south-east to north-north-west.

Dew very heavy, yet plague of flies. Sweltering morn. At 9 A.M., thermometer 82° (F.). 9.30 A.M., good sea-breeze from south. Fine day. In evening cold; clouds from east gathering, 9 P.M.; thick at night, threatened rain.

GEYSIR TO THINGVELLIR.

July 16.

Left Geysir 11 A.M. Passed Laug farm to south-west, and crossed spongy bog and swamp in rivulet-influent of Túngufjót,

passing between Laugarfjall and the outlier. Rounded south end of Laugarfjall.

12 (noon).—Múli (muzzle, maul, mull) farm, one of the best; skirted southern Bjarnarfell, between ugly, black, bare hills and swamp over triangle (Biskupstúngur), formed by Túnguffjót and Brúará.

12.20 P.M.—Chapel farm, Uptirhlíð (?); extensive view; sunk road. Two rivulets, second small and boulder-paved. Forest (birch and willow) begins and lasts with interruptions all day. See more wood in one hour than on all south coast.

1 P.M.—Passed to left chapel farm, Úthlíð, at foot of Hraun of same name.

1.40 P.M.—Crossed bridge of Brúará (bridgewater), and entered lands of Laugardalr. Forded a fourth stream. On right, Efstidalr (uppermost dale), at foot of black plateau, ugly, bare, and gashed with many drains. Hognhöfð pyramid to north, rhinoceros head and horn. Left Miðdalr chapel on right, and rounded upper swamp of Apavatn (ape or fool water, from a settler in the ninth century).

3.15 P.M.—Crossed streamlet fed by many drains and trickles; first down, then up bed, sand-bars and islets; must be unfordable below. Rounded Laugarvatn (lake), large farm and hot spring.

4 P.M.—Halted Laugarvatnsvellir; fine pastures. Five hours tolerably fast = 20 indirect statute miles. Good view of Hekla. Saw two snow-fonds, up which we had walked.

5.20 P.M.—Left Laugarvatn by made road on “barmr” (edge) of low rolling ground and humus, confining big swamp on north; Bjarnarfell hill to right, then three peaks of Kálfstindar. Travellers and caravans.

6 P.M.—Entered old lava. Path rose to 600 feet, and showed Thingvellir Lake. Grim hill, Reyðarbarmr (red, *i.e.*, salmon-trout edge), to right. Road rutty. Dimon or Tindhruni (Bryson’s Tintron), an extinct crater in shield form, rising at base of high hill on right.

7.30 P.M.—Gjábakki farm, close to Vellankatla (boiling kettle), north-eastern bay of lake (proper name of boiling well; Cleasby supposes it sank below water-level), along lake.

8.15 P.M.—Hrafnagjá; eastern crevasse.

9.15 P.M.—Middle crevasse, called Háflagjá, Hólagjá, or Breðnigjá (?).

© VII. 9.30 P.M.—Chapel of Thingvellir.

Second march, 4 hours 10 min. = 20 miles. Total, 40 indirect statute miles; map, 26.5 direct geographical miles.

General direction, north-east and by north to south-west and south.

Glorious morning; cloudless; gentle breeze from north. At 11 A.M., chopped round to south-west. At noon west, blowing dust in face everywhere except on lava. Clouds. Few drops of rain. Presently weather recovered itself. Very fine evening and night.

THINGVELLIR TO REYKJAVIK.

July 17.

3.35 P.M.—Left Thingvellir (paid \$2, 3m. Osk.).

Forded Öxará; up rude basaltic causeway, some ten yards long, a little south of where Öxará escapes into plain—site of Búðir. A few yards down grassy surface of Almannagjá. Up split in western wall. Dreary scene on summit; old lava, grassy and moss grown.

5.40 P.M.—Last sight of Thingvellir Lake, and first view of black buttressed Esja, with gleam of sea. Entered Mosfellsheiði; soil damp, sour, and barren; signs of road-making, and Varðas everywhere. Left to right two ponds, Leiruvogsvatn and Geldingatjörn, latter undrained; skirted east and south base of Grimmansfell (ugly man's fell); to right, steaming spring (Reykjalaug).

7 P.M.—Descent to the far-famed Seljadalur (sallow = willow dale).

7.45 P.M.—Dwarf ravine on left. Its stream finds the Hrafnvatn reservoir of Reykjavik Laxá. Rode down grassy basin; forded stream twenty-five times, fetlock to knee-deep.

8 P.M.—Halted to graze ponies. First march, 4 hours 25 min. = 20 indirect statute miles.

8.45 P.M.—Remounted. Continued Seljaland valley; ponds

on both sides with and without drains. View of Snæfellsjökull. On left porcupine-shaped Helgafell.

Hill and basins. Travellers camped where forage is not paid for. Then inhabited country.

10 P.M.—Causeway and made road to Reykir. Ponies dashed through two branches of Laxá.

© VIII. 11.30 P.M.—Reykjavik. Home.

Second march, 3 hours = 15 indirect statute miles. Total, 8 hours = 35 miles; map, 24 direct geographical miles.

General direction, east and by north to west and by south.

Weather fine and clear like yesterday. Sun now sets at 10 P.M., and air grows cold. Find people strolling at midnight. Dust in Reykjavik very bad.

EXPENSES OF TRIP FOR TWO TRAVELLERS.

Guide (10 days at \$2, 3m. Osk.),	.	.	.	\$25	0	0
Boy (10 days at \$1, 3m. Osk.),	.	.	.	15	0	0
Returning horses to owners,	.	.	.	4	3	0
Hire of pack-saddles and boxes,	.	.	.	7	0	0
Twelve horses (at \$1 per diem),	.	.	.	120	0	0
				Total,	\$171	3 0

The extras and minor expenses, \$27, 2m. Osk.

Share of each traveller, \$104, 2m. 8sk., or £12 for ten days.

CHAPTER XII.

ON HUMAN AND OTHER REMAINS FROM ICELAND.

SHORTLY after my return to England the following letter was sent to the Anthropological Institute :

“I have the pleasure to forward a small collection of human remains and other articles from Iceland.

“The site of the ‘find’ will readily be found upon the four-sheet map of Gunnlaugsson and Olsen. Cast the eye eastward of the great southern stream ‘Markarfljót,’ mark or forest flood, whose eastern delta-arm debouches nearly opposite to Vestmannaeyjar, Islands of the Irishmen. You will see on the left (east) of the stream the little valley of Thórsmörk, the grove of Thor, a good sturdy old god, whose name still lives and thrives in Iceland. He was even preferred to Odin, ‘Hin Almatki Áss,’ ‘that Almighty Áss,’ by the people of Snowland, and in more modern days he was invoked when a doughty deed was about to be done; the deities of Christianity being preferred only when the more feminine qualities of mildness and mercy were to be displayed.

“The valley in question is described by the ‘Oxonian in Iceland’ as a ‘beautiful green-wooded spot,’ near which flows the Markarfljót. About eight miles long, with precipitous sides, its site is bisected by a narrow but tolerably deep ‘boulder-river,’ a bugbear, by-the-by, of Icelandic travel, and this must be repeatedly forded. The map shows a green patch; the shrubs may average six feet, whilst one monster, a rowan or mountain ash, attains the abnormal altitude of thirty to thirty-six feet. It is one of the tallest, if not the tallest, in the island; the two ‘giant trees’ of Akureyri, which every traveller is in duty bound to admire, do not exceed twenty-five feet.

“ Reaching, on July 16, 1872, Thingvellir (Dingwall or Thing-wall), after a Cockney tour to Hekla and the Geysir, I met a young Englishman who was returning from a sketching expedition round the now rarely visited south coast. From Hekla I might easily have made Thórsmörk in a day, but the depôt of bones was then unknown to me. Mr W—— had travelled from the Eyvindarholt farm, west-south-west of the site of the find, in some six hours of fast work, and complained much of the road. There are only two guides, and the half-dozen influents of the Markarfljót were judged dangerous. It is only fair, however, to state that he had read the ‘Oxonian in Iceland,’ and he was prepared to ford the terrible torrents, nearly three feet deep! in boots and ‘buff.’ After passing the sites of many fine farms, now destroyed by the ever-increasing ice, he entered the valley from Eyvindarholt by a rugged entrance, leaving the bone-heap about half-way, and to the right of his track. The remains lie under a cliff, where much rocky matter has fallen; above it is the ice-snout projected by the great glaciers and *névés*, Merk-Jökull and Godaland’s Jökull, which rise to the north-east and south-west, whilst the rest of the valley, where eternal winter has not overwhelmed the woods, is the usual Icelandic green, vivid and metallic.

“ The heaps evidently consist of

“ ‘ The bones of men
In some forgotten battle slain,
Bleached by the drifting wind and rain.’

Social traditions assign them to the troublous times of ‘Burnt Njál.’ This must be expected in these parts of Iceland; several of the remains, however, are described as those of infants.

“ From Bjarni Finnbogason, who, as a ‘youth of extreme usefulness,’ had accompanied Mr Shepherd, and who, developed to a prodigious rascal, had undertaken Mr W——, I took the cranial fragments marked A and B. Arrived at Reykjavik, he agreed for 27 rixdollars (say £3) to ride back and bring me as many skulls as could be found or dug up. After attempting in vain—he had taken earnest money—to throw me over in favour of another party of travellers, he set out on Saturday, July 20th.

He was not to return till the next Friday evening, but, wishing to secure other victims, he came back on Thursday, too soon for any good results. Moreover, he charged me for doing nothing 32 instead of 27 rixdollars, which extortionate demand was satisfied rather than run the risk of men saying that an Englishman had shirked payment. I have the pleasure, despite sundry certificates obtained from various innocents, his dupes, to give him the very worst of characters, and strongly to warn future travellers in Iceland against him. He was familiar as the lower order of Hebrew; he would listen to every conversation; he haunted his master like a Syrian dragoman; he intrigued and abused all other guides; and as for his English, he understood 'a whip with a thong ten feet long' to mean 'a pony ten years old.' The guides at Reykjavik are not worse than the generality of their craft, *pace* Baring-Gould; some are better; but Mister Bjarni—he is generally called by his English employers Blarney and Barney—is a bad lot, who knows well how to *pelare la quaglia senza farla gridare*.

"The following are the principal items herewith forwarded:

- 3 fragments of thighbones;
- 1 large hone, 3 smaller;
- 1 parcel of sundries;
- 1 broken spindle (?) steatite (?).

"The hones, of which there is an interesting collection in the young museum of Reykjavik, are interesting. The old world Icelanders, as Uno Von Troil, as may be seen in the Rigsthulu, informs us, ever held it a 'noble art to understand well how to sharpen the instruments of death.'

"RICHARD F. BURTON."

The following paper was read by the author:

"NOTES on HUMAN REMAINS brought from Iceland by Captain Burton. By C. CARTER BLAKE, Doct. Sci., M.A.I., Lecturer on Comparative Anatomy and Zoology at Westminster Hospital.

"The remains which Captain Burton has brought from Iceland are composed of fragmentary evidences of man, hog, ox, and horse.

" I. MAN.

"There are five races of man with whom any remains which may be found in Iceland may be compared with a view to their identification—the Norwegian, Skraelling or Esquimaux, Irish, Lappish, and Russian. I shall briefly pass over the chief characters of these races, and as the Norwegian is the race which forms the majority of the Icelandic population at the present time, I shall commence with it.

"The late Dr James Hunt, during his tour in Norway, collected an enormous amount of statistical facts with regard to the cranial measurements of the Norwegians, which were verbally communicated to the British Association for the Advancement of Science at Birmingham.

"The publication of the memoir containing them was postponed at the wish of the author, and I am consequently only able to refer to my own rough notes, taken at a time when I examined the manuscript of my lamented friend. The general results seem to have been that the Norwegian skull, excluding from consideration all persons apparently of Lappish descent, was excessively short and round, that cases of brachistocephaly were frequent, and that cases even of hyperbrachistocephaly were to be found. The district investigated by Dr Hunt was chiefly to the north of Drontheim, and especially the neighbourhood of Hammerfest. The Swedish skull, on the other hand, appears to be dolichocephalic to a degree; while the researches of Dr Beddoe on the head forms of the Danes indicate a population whose cranial index oscillates from 85·9 to 75·3.

"The cranial characters of the Esquimaux, Irish, Lappish, and Russian races have been so often described, that I pass over the minute comparison, and proceed at once to the evidences on the table. These consist of the following specimens:

"1. Fragmentary calvaria of adult human individual. The contour of the skull has been brachycephalic, though its measurement is precluded by the fact that the left parietal, which alone exists, has been broken off from the frontal bone. The frontal region is bombate. Moderate superciliaries overhang a shallow supernasal notch. The nasal bones extend forwardly, and have not the slightest approach to the form presented by the Esqui-

maux, and in the 'Turanian' skulls described by Dr Pruner Bey. The superorbital foramina are converted into notches on both sides. A small piece of the alisphenoid bone exists, attached to the right frontal, indicating that there was a normal sphenoparietal suture. The dentitions and seriations in the coronal suture have been deep. The parietal bone of large size accords with the frontal in all essential characters of these sutures.

"The occipital bone is in a very fragmentary condition. It is not marked with any prominent ridges for the attachment of muscles, a fact which, coupled with the small development of the mastoid processes, leads the observer to consider that the present skull has belonged to a female.

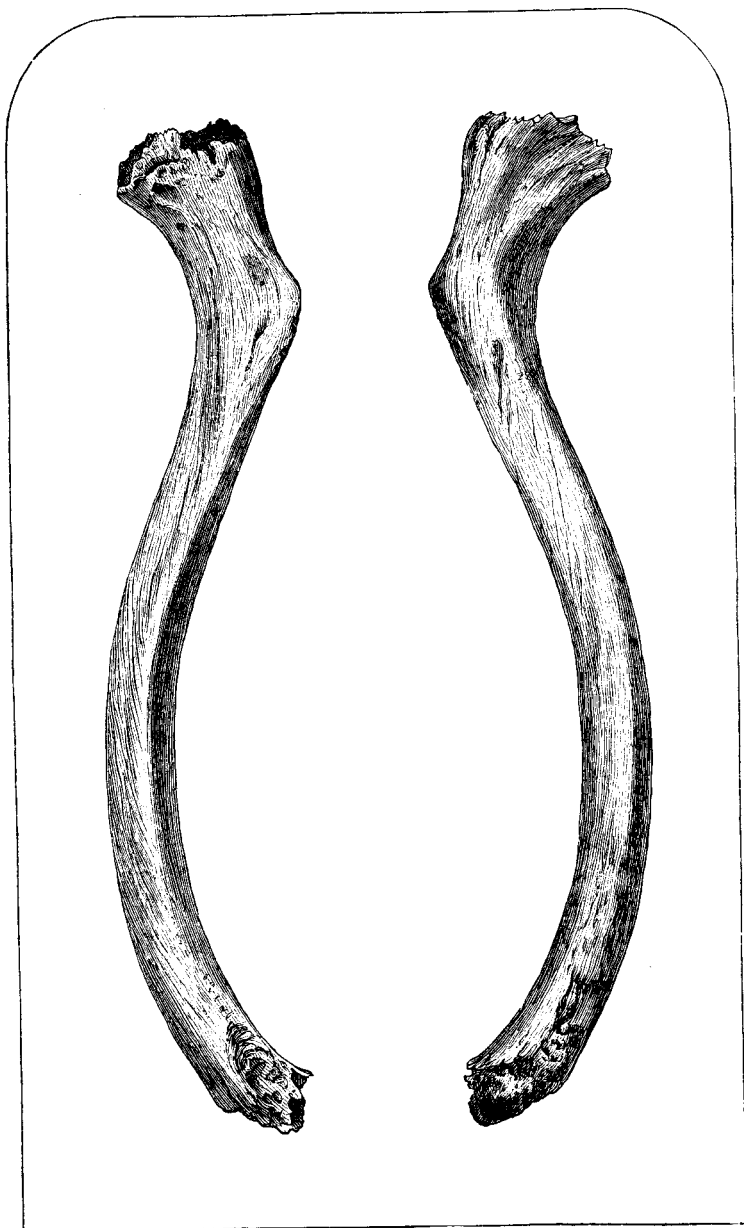
"Three petrous bones, with fragmentary mastoid processes attached, exist in the collection. The smaller size and parial relationship of two of these render it probable that they belonged to one individual, and that the same whose cranial vault has just been described. One large, light, petrous bone appertains to an individual of much larger size, possibly masculine, but I regret that no other specimens are found of this interesting person.

"A fractured palate, with two teeth *in situ* (the first and second molars), leaves evidence highly conclusive as to the food of the inhabitants of Thórsmörk. The crowns of the molars are much attrited by the consumption of hard substances, and are in the same condition as is presented by the teeth of the neighbouring but different race of Skrællings. The first and second molars are both implanted by three fangs.

"The right clavicle (pl. xix.), which is found with both extremities broken away, indicates an individual smaller in size, and with lighter and more slender clavicles, than the Australian drawn by Owen in 'Trans. Zool. Soc.,' vol. v., plate ii., figure 4, and of course more so than in the European drawn in figure 2 of the same plate. Three long and slender femora, a right first rib, a large axis vertebra, a fragment of shattered humerus, and a cuneiform carpal bone are found in the collection.

" II. HOG.

"The remains consist entirely of fragmentary limb bones, and of a few teeth. These need not be noticed in detail.



HUMAN CLAVICLE.

" III. HORSE.

"The equine remains from Thórs mörk are interesting. The first molar and the fourth premolar tooth of the lower jaw, as well as the third deciduous molar of another individual, indicate the existence of a horse of ordinary dimensions, as large as the ordinary European horse of the present day, and larger than the Shetland or Dartmoor ponies. There are few points of resemblance between these teeth and those of the *Equus spelæus* figured by Owen ('Philosophical Transactions,' 1869, plate 57).

" IV. OX.

"Teeth of the *Bos taurus* are present, though in an imperfect condition.

"From the above remarks it will be, I believe, clear that the skulls now described belong to the Norwegian race, though possibly there may be an admixture of Celtic blood derived from the descendants of the Irish prisoners brought into Iceland by the Norsemen. But in no sense can these be termed any Esquimaux or 'Boreal' affinities. That prior to the year A.D. 860, when the expedition of Naddod to 'Snæland' brought Iceland face to face with Norwegian civilisation, a more ancient race, allied to the Esquimaux, may have existed in Iceland, is a possible speculation, but one of which as yet we possess no anthropological proofs. The domestic fauna which exists in Iceland appears to accord for the most part with that of Norway, and the people do not appear to possess any intermixture of Esquimaux blood.

" DISCUSSION.

"Mr MAGNUSSON said.—As regards the possibility of an admixture of Esquimaux blood in the Icelandic nation it cannot be maintained on historical grounds. There is no record extant to countenance the supposition that at any time Iceland has been inhabited, wholly or partially, by this polar race. The island lies out of the belt of the Esquimaux, and he would find himself there entirely out of his element, the conditions for the existence of human life in Iceland being entirely different from those on which life in the polar regions depends. The parts of the country

first discovered by the Norwegians contained a few people who had come from England in A.D. 795; and it was first in A.D. 874, or thereabouts, that the first settlers came upon living human beings there. These, however, were not Esquimaux, but Irish Culdees, who had taken up their hermit abode in some of the outlying islands off the south and south-east coast—their solitude being more congenial to the spirit of the anchorite than a residence on the mainland, which meant a more energetic fight with nature than a residence on the islands. The spirit of priest and pirate being then no more homogeneous than now, the Westmen—as they were called by the invader—were soon destroyed. This is, briefly stated, what we learn about these Westmen from Icelandic sources of history. But from Irish sources we learn more. The Irish monk Dicuil, of the eighth century, has written a book called ‘*De Mensura orbis Terræ*,’ in which he says that in A.D. 795, he spoke to some Irish hermits having returned from an island in the north, which he calls *Ultima Thule*, and which, from his description, can be none other than Iceland. It is, therefore, certain that Iceland had been discovered from Great Britain or Ireland some seventy years at the least before ever the Norwegians ever came there. As to the human remains before us, they need be no older than the eleventh century, unless scientific evidence should prove the contrary, for at the beginning of that century, and long afterwards, *Thórsmörk*, the locality from which they are said to come, was an inhabited countryside. Their real value, I presume, depends entirely on their antiquity; but being no philosopher in matters of this nature, I take leave of the bones and Captain Burton’s paper, which has thus far disappointed me that I have learned from it much less than I anticipated.

“DR CARTER BLAKE agreed with Dr King that no affinities to the Esquimaux were presented by the present specimens. Many Lapp skulls existed in the Continental museums, and some *Tschuktchi*; but there was great dearth of Esquimaux skulls from Behring’s Straits. On the hypothesis that the *Aïno* skulls exhibited Esquimaux affinities, it was difficult to discuss the question. Dr Rae’s observations on the stature of the Esquimaux were certainly interesting. The skeletons in our museums were

short and stout; but how far were they typical examples of the race? The circulation of the queries by the Arctic Exploration Committee would tend to elucidate these questions. With regard to the observations which had fallen from Mr Eiríkr Magnússon, he was himself 'agreeably disappointed' that the Institute was not to be converted into a 'hólmgang' wherein to criticise Captain Burton's excellently narrated facts. He failed to perceive what evidence a French or Irish monk could have possessed of Culdees in Iceland in A.D. 795, as Iceland was not discovered (according to Mr Magnússon's statement) till A.D. 874, and according to ordinary chronologists, till A.D. 860. In matters wherein the veracity of a distinguished traveller had been attacked, it was necessary that the utmost care should be taken respecting facts and dates. Captain Burton in no part of his paper assigned a high antiquity to the bones, which may either belong to the time of Burnt Njál, or to a far more recent period."

CHAPTER XIII.

TO EASTERN ICELAND—WE REACH MÝ-VATN.

SECTION I.—THE VOYAGE TO BERUFJÖRÐ.

TRAVELLING seawards from western to eastern Iceland is by no means so easy as the converse. I held myself lucky, though somewhat late, in finding the Postdampskibet "Diana" bound for Berufjörð. She left the capital betimes on a normal Icelandic summer day (July 27); windless or sea-breezy below, while high in ether a tangled web of white threads and comet-like cirri showed the usual upper gale, the *ἀνεμοὶ δόο* of these regions. The straw-yellow sun-gleams cast upon the south-western shore enabled our learned glances to distinguish the features of the scenery, a now familiar scene.

About noon we ran along the great lava-field of rough slag and deep, loose volcanic ashes, bearing here and there a tuft of wild oats; the surface was fissured with Geos, and the sharp broken and splintery edges were reddened by fire, and whitened by birds. This corner was seldom visited by the older travellers; Mackenzie reached only Grindavík, and even Henderson neglected Reykjanes. It was carefully examined by Dr Hjaltalín, first in 1827, after the submarine eruption to the south-west, which floated a quantity of pumice, and again in 1866, to examine the silica diggings. He found several Makkalubers, or mud-puffs, and Hverar (hot springs), the north-easternmost called Gunna. A little to the north, a solfatara, extending over an acre or so of bald red bolus, was blowing off steam from cracks and holes, whilst to the south-east rose a large extinct vent which had discharged abundantly north-north-westward. This was the "New Geysir," concerning which I had endured

plentiful "chaff;" for instance, the lines addressed to me by a charming person, and beginning with—

"So there is a new Guy, sir, in Iceland."

The silica mounds, which are now partly, if not wholly, English property, lie near the largest of the mud-puffs, a common caldron, some fifty feet in breadth by half that depth, spluttering thick blue-grey mire, and wasting sulphurous steam. The mineral is remarkably pure; its whiteness suggests that it has been deposited by water, though how and when no one pretends to say; and its laminations are easily reduced to fine powder. It would doubtless sell well in the home markets, but at present there are two objections to it; the quantity does not appear sufficient to justify heavy works, and without these, transport is simply impossible.

To starboard, we had a fine view of the Fuglasker (fowl or gull skerries), which the fog had hid from us in June, and which, like the Canaries, are seldom all visible at the same time. The nearest, about eight miles from Reykjanes, is Eldey (fire eyot), also called the Mjöl-sekkr, from its likeness to a "monstrous half-filled bag of flour;" Scotchmen compare it with Ailsa Craig, and Scoto-Scandinavians with the Holm of Noss. Its shape is that of a tree-stump 200 feet high, cut with a slope dipping north-west, and yellowish-white with rain-washed guano. The heavy surge swarming up the sides and swirling round its small red appendage, the Eldeyjardrángr, suggested peculiar difficulties of landing. The tumult of the waves is described to be even greater about the rest of these "Kaimenis," the Geirfuglasker, and the tall stack known as Geirfugladrángr, the Danish Grenadier Huen, or grenadier's cap. The two latter, prolonging the line to south-west and by west, and distant twelve and fifteen miles out to sea, lie far from the course of steamers; landing must be impossible, save on exceptional days, and the climbing is said to be bad as the landing. Lastly, there is the Eldeyjarböði, "boder," or warning-stone, *alias* Blindfuglasker, a sunken rock, where New Isle (Nyöe) rose with the Skaptár¹ eruption

¹ Skapt is a "shaved" stick, haft, shaft, or missile; Skapt-á, the shaft-river = Scot. and Eng. Shafto; and hence, Skaptár-fell (sounded *Skapta-fell*), is the

in 1783, gathered its three craters into one, and presently disappeared in five to thirty fathoms depth. I could learn nothing about the favourite auk-rock, said also to have been submerged in 1801, or of the skerry which Lyell throws up in June 1830.

As we steamed along shore, where the host of white spectres haunting the background contrast so curiously with the fat burgher-like plain, we looked curiously, but in vain, for the Drifanda-foss (spray-driving force), which acts barometer to the Westman Islands, and which travellers describe as if it were the Yosemite, "swinging like a pendulum, and often scattered into air." It is probably a local name for the Seljaland-foss, east of the Markarfljót,¹ under whose arch of waters there is the same pleasant and comfortable passage which distinguishes sections of Niagara and the Giessbach. Beyond it we distinguish the Skógarfoss, where the old colonist, burying his treasure in a kieve, still causes men to sing—

" Thrasi's box is precious
Under Skogar's force ;
Whose thither goeth
Folly hath enough."

The approach to the Vestmannaeyjar about evening time, when a vinous hue masked the grim complexion of these "basaltic ninepins," was more than usually picturesque. We steamed by the twin droogs and the little black dot, Einarsdránger, and anchored on the north-west. Fortunately for travellers, there is riding-ground here, when the fierce easter makes the Kaupstaðir impracticable. In propitious weather, ships usually round the north-eastern head of Heimaey, and lie off the eastern or true port, which is somewhat defended by Bjarnarey. The Holm-isle, once a fire-mountain, now a habitation for mankind, is the main body, to which a score of outlying rocks and skerries act satellites. Viewed from the west, this couthless mass of columns, pinnacles, and obelisks, becs, prongs, vigrs, stacks, and frow-stacks,² resolves itself into a line of three heaps, like the

Shapfell of Westmoreland (Cleasby), the Icel. "sk" being generally permuted to the softer English "sh."

¹ Baring-Gould places it near Holt, east-north-east of Erlensey.

² The "frow-stack" is a skerry, resembling a woman's skirt. Sir W. Scott

Moela, or Gizzard Island of Brazilian Santos. The eastern side shows a low slip of land connecting two culminations; to the north, Heimaklettr, upon whose tormented slopes, 916 feet high, sheep are grazing; and southwards, Helgafell, a more shapely volcanic cone of cinders and grass—it is the work of the Trolls, famed for truth. A white church and steeple, fronted by black huts, provides for some 400 souls, excellent cliff men, full of fight, and armed with guns against the marauding of foreign fishermen—Frenchmen especially.

After the visit of Mr Syslumaðr, who came with the Danish flag to fetch the Iceland mails, we resumed our course, leaving a nameless shoal and Bjarnarey to starboard, and presently the tall bluff peak of Erlendsey¹ to port. The sun setting in cloud, mist, and rain at the respectable hour of 9.30, we congregate below, and enter upon a critical consideration of the "Diana." The English passengers agree that the "Queen" is more "homely-like," which must console her owners for twenty-three tons of fuel per twenty-four hours; the old Danish craft, much like a gunboat on the West Coast of Africa, with 150 horse-power to drive 300 tons, burns only ten, but, *en revanche*, she seldom exceeds seven knots. Those who converted her to peaceful pursuits built an upper cabin, cut up the deck, and forgot seats on the quarter-deck; this "hurricane deck" acts like a pendulum, and makes her roll in the mildest sea, lively as her namesake, till we almost expect her to "turn turtle." The management is essentially in naval style combined with extreme irregularity of hours; even beds are not allowed in the saloon, whilst there are vacant berths in the dog-holes below, consequently sleep is satisfactory as in the "omnibus" of the P. and O., when running down the Red Sea during midsummer. The cleanliness of the Norwegian is notably absent; two wash-hand basins for sixteen head of passengers, and suspended towels, heap difficulties upon washing and make bathing impossible. The Hofmeister or

(The Pirate, xxvi.) says the "*Fraw-Stack*," or Maiden Rock, an inaccessible cliff, divided by a narrow gulf from the island of Papa, has on the summit some ruins, concerning which there is a legend similar to that of Danoc. Vigr (a spear, in the Orkneys Veir) describes a sharp-pointed rock.

¹ Erlendr is here a proper name: usually it is an adjective, meaning "foreign" = the Germ. *Elendi*.

restaurateur, who pays the company for leave to feed the taken-in, is not a praiseworthy institution: I almost prefer the purser-plague. Nor are the Danes famed for cooking; they affect grease and, generally, an amount of carbonaceous matter which would horrify Mr Banting. At seven A.M. there is coffee or tea, appropriately called "tea-water;" we breakfast at nine, dine after Genoa fashion at three, and sup at half-past seven—or thereabouts. All the meals begin with *hors d'œuvres*, pickled oysters, preserved lobsters, and the bulbs which, according to Don Quixote, are fit only for cullions and scullions; there is an abundance of cold meat, salt and fresh, and of sausages which, to the British mind, suggest nothing but trichines and hydatids. As long as kindly Captain Holme ruled the "Diana," we had not much cause to complain; on my return voyage his place was taken by a manner of naval martinet, and it is hard to pay full merchantman's fare for man-of-war's discipline.¹

The next morning rose tolerably fair, a matter of no small importance to sight-seers, who are here exposed to constant disappointments—a rainy summer's day in Iceland is common as a shower in England. About noon we were abreast of the low black ridge, the southern base of a bay-island, whose name, "Ingólfshöfði," still notes where the first colonist first landed. Over this headland, and due north, rose the culminating point of Iceland, "Öræfa- (pronounced *Oeriva*-) jökull," in the Skaptafells Sýsla, the havenless ice-mountain, so called from the open unsheltered coast of south-eastern Thule.² Here the climate, affected by the huge refrigerator, becomes Arctic, and the land somewhat justifies the exaggeration of travellers, who compare Iceland with a "bit of the moon;" the sober Paijkull's "exalted scale of nature" now reads not inapplicable. As Mr Forrester describes "Norway and its Scenery" (1853), this region is an expanse of "savage heights and unfathomable depths," crowned by its shapely white apex, which rose like an atmosphere of clouds—we were never tired of gazing at it. In June the whole

¹ Also the single day's passage from Reykjavik to Berufjörð is \$12, or one-third of the full passage to Granton, which takes eight to nine days. The other and far more important complaints against the "Diana" have been noticed before.

² From Ör, negative, and Höfn, a haven: as will be seen, the plural Öræfi is also applied to a wilderness.

of the upper half, at least 3000 feet high, had been mantled with snow; now the line had shrunk to 2000; and black points, lava islands, and basalt nubs, which warm exposure or too steep an angle had left uncovered, ran up almost to the summit. On August 25 I noticed no change. The shape from the south appeared a flattened cone, a headless sugar-loaf, with white stripes extending far down the folds; about the waist a fast-moving nimbus, brown and slate coloured, enhanced the virgin ermine of the garb. Farther east we saw a long congealed wall built on a meridian, crested about midway by the peaky Hvannadalshnúkr, and buttressed southwards by two parallel points, the hnappar or knobs. Inland the Klofajökull was wholly concealed from view; seawards the semicircle at its base showed every variety of Icelandic eccentricity, the coffin, the sugar-loaf, the horn, the crescent: the expanse of snow-falls and ice-ridges, streaked with *couloirs* and gullies, ends in glaciers and hanging glaciers, the first we had seen on the island,

“Projecting huge and horrid o’er the surge.”

The Breiðamerkr, rolling down towards the ocean, kept up by pressure from behind, and showing the usual glorious tints of sapphire-blue and emerald-green, was a model to its kind.

About sunset the scene again shifted. A false shore of lagoon and sand-strips, varying from a mile to a hundred yards in breadth, is broken by a headland, the giants of Vestrahorn—Whydah and Jan Mayen side by side. To the north lies Papós, pope’s or priest’s oyce, the mouth of Papafjörð, which in the Brazil would be called a *mar pequeno*, fed by drainage from the highlands, meeting the ocean-tide. This unsafe anchorage is the only riding ground for ships along the southern and south-eastern coast, between Eyrarbakki and Djúpivogur. Formerly the peasantry had a week’s journey to the comptoir of Berufjörð, but in 1862-63 Hr Jonssen, a Dane, established a trading station. Beyond Papós rises the five-crested top of the Eystrahorn ridge, a wild and savage spectacle which, being gradually wrapped in a winding-sheet of vapour solid as an ice-fog, ended the glories of the day. Our fellow-passengers wished us Berufjörðians *bon voyage*—we were to reach our destination at dawn.

But the kindly hope came too soon. July 19 opened with one of those calm and clammy "Scotch mists," for which all this part of the coast is infamous as Newfoundland, and no wonder, when it lies to leeward of a Jökull-land, covering some 3000 square miles. "Diana" was bound to wait forty-eight hours before she carried us away southwards, but she did so grumblingly: naval officers in Denmark, as in England, may be deterred by undue blame from undertaking the least possible responsibility. Indeed a protest has been proposed against even visiting Berufjörð. Although we saw the loom of the land, we did the very worst thing we could do, steaming slowly to and fro between the twins Selsker and Papey, where the bottom is foul with hidden rocks. The coast between Berufjörð and its southern neighbour, Hamarsfjörð, the latter so called from its hammer-head of perpendicular cliff, is an infinite complication of small, black islets, useful only to eider-ducks, and a

"tortuous labyrinth of seas
That shine around these Arctic Cyclades."

We inquired vainly for the apocryphal Kuggr ("cog," or small fishing-craft) of the maps, Gunnlaugsson's included, which is represented only by a shoaling of some six fathoms. We afterwards saw the little lump of Geirfuglasker or Hvalsbak,¹ distant about twelve miles. It was described to me as a rock forty fathoms long and about the height of a ship's deck, rising from very deep water. Yet it begat the large Enchuysen Island of the Dutch. This modern representation of the Islanda of the Zeni Brothers was perpetuated in Maury's Wind and Current Charts (3d edit., 1849) and in the Enkhuisen Island of Laurie (1862), who cut off 120 miles (= 2°) from the eastern coast of Iceland. It is a worse case than in olden Ireland, where "the sly surveyors stole a shire."

It is interesting to observe how the country has retained the names of the Papar. These white-robed "anchorites," as they are generally called, must first have settled in the island (Papey), and the Ystoria Norwegiæ tells us, "Adhuc quædam insula Papey

¹ In the Færoes the whale is written "Qual," a pronunciation still retained in Iceland.

ab illis denominatur." They then took courage to explore the coast lying south-west, entered the Papafjörð by the Papós and, passing towards the warm Auster, founded the monastery of Kirkjubær, on the Skaptárós, not far from the point where, in after-ages, Hjörleif landed. We must therefore differ from a modern writer (*Edinburgh Review*, viii., note, p. 243) who says, "It appears that some wrong-headed monks, either by stress of weather, or by design (for the perfection of religion was supposed to consist in rendering themselves useless by withdrawing from society), had actually sailed to Iceland where they settled, it being most probable impossible for them to find their way back again." The Papar were no castaways; they kept up, as Dicuil has shown, connection with the mother country; and the Landnámabók, at the end of the Prologus, mentioning both Papey and Papyli or Pappýli (*i.e.*, Paparbyli or *pagus*), says, "It is related in English books that men fared often from one land to the other."

Another interesting remark is that whatever way we approach Iceland from Europe, south-east, south, or south-west, we find some islet or needle named Geirfugl, and this connected with the "Gare"-fowl (*Alca impennis*, Linn.), an ancient and almost forgotten term for the great auk, revived by Messrs Wolley and Newton.¹ This northern "Roc," Dodo, or Moa (*Dinornis gigantea*),² is sketched by Paijkull in the shape of a three-foot penguin; and according to Professor Steenstrúp, supported by Mr Newton, it was confined to the Polar regions, or, indeed, to the far north. The Icelanders believe it to be blind (*Blind-fugla-sker*), an opinion not shared by the Norwegians and the Færoese. Mr Newton advised me, in case of success, not to follow the usual system of skinning the birds, and blowing the eggs, but to treat the former with pyroligneous acid, which mummifies the

¹ Mr Newton's valuable paper in the *Ibis*, containing all that is required *quæ* Iceland ornithology, has been alluded to. He quotes the works of the late Hr Petur Sturitz, of Professor Steenstrúp (*Videnskabelige Meddelelser for Aaret 1855*), of the venerable Richard Owen (*Paleontology*, 2d edit., 1861, and *Trans. Zool. Soc.*, June 14, 1864), and of many other writers. An interesting note about the "only wingless, or rather flightless, species of the northern hemisphere," and two recorded instances of the *rara avis* being kept in confinement, are given by Baring-Gould, Appendix A., pp. 406, 407.

² My companion, Mr Chapman, a New Zealander, who has returned to New Zealand, suggested that, despite Dr Hector, the Moa, a bird eight feet high, may still be found alive in some of the forest fastnesses of his native island.

meat, and to preserve the latter in spirits after being coated with paraffin or stearine: thus they would be useful for embryological and other investigations.

The unwieldy bird, common till 1834, was killed off for its meat and feathers, and the last eggs were taken from Eldey (the meal-sack) and the Geirfugladránger in 1844. Mr Newton suggested a visit to these needles, and Mr R. Buist kindly directed the "Queen" to touch at them; but the weather made a visit impossible. He also advised an exploration of the Geirfuglasker, the south-westernmost skerries of the Vestmannaeyjar archipelago, and others spoke of the Geirfuglasker or Hvalsbak, east of Berufjörð. But the old Icelandic fiery spirit of adventure, all but burnt out under normal circumstances, flames high when the fuel of rixdollars is liberally applied. Geir Zoega of Reykjavik assured me that the Eldey and the Auk-Needle off Reykjanes had been repeatedly visited by fishermen since 1844, the date of the last find;¹ and, though Hr Grímr Thomsen of Bessastaðir "begged to differ in opinion," the destruction of the bird during the last twenty years proves that the people have been in the habit of hunting it. Of the Hvalsbak I was told that though auks may have been seen there, the breach of the sea would have prevented their nesting and breeding. Remains only the Gare-fowl-skerry of the Irishmen's Isles, and I am not sanguine that exploration will yield favourable results.

The fog from the west and south-west, which enwraps this firth when the northern Fjörðs are quite clear, began to break at eight A.M., and before eleven it had lifted sufficiently to show the beacon and the one big house perched upon the basaltic knob of Papey. There is a report that this feature and the islets around it are gradually rising, and that a sensible difference is observed every thirty years. Gradually to starboard the lower folds of Strandafjöll, stepped like the Esja and Skarðsheiði, and farther off the black curtain of Búlandstindr, frayed at the summit, struggled into sight. It was a most inhospitable-looking region,

¹ According to Barnard, the last European auk was killed in 1848, at Vardö, a Norwegian fortress on the frontier of Russia.

“ a coast of dreariest continent,
In many a shapeless promontory rent.”

Shortly after noon passing Jón's Holmr and beyond it the Long Tongue, forming the eastern entrance, we anchored in thirteen fathoms water off Djúpivoggr (deep voe), a baylet in the southern jaw of the great eastern firth, Berufjörð.¹

SECTION II.—AT DJÚPIVOGR.

I parted regretfully with Mr Chapman, who had no longer anything to detain him in Iceland, and landed in company with four Englishmen. Mr Askam, with a fine persistency which hails from Yorkshire, would have probably tried to swim ashore had “Diana” shown the white feather. Mr Alfred G. Lock, the concessionist of the north-eastern sulphur mines, his son Charles, and a friend, Mr Pow, of Penicuik, lately from the Argentine Republic, were equally pleased with the unexpected favours of the fog. The former easily persuaded me to join him as far as the Mý-vatn, with the hopes of pushing southwards over the Ódáða Hraun to the unexplored Vatnajökull.

A few preliminary words concerning the mysterious formation along whose southern line we have coasted, and whose northern frontier we shall presently visit. The map shows a huge white blot, labelled Vatnajökull eða Klofajökull, and little distinction is made by the people. The former, signifying water or lake glacier, is so called because *avalasses* of fluid are at times discharged—a phenomenon generally attributed to the bursting of reservoirs through the frozen edges, which are higher than the

¹ Berufjörð is derived from Berr, of whom more presently, or from Bera, a she-bear, the animal being often floated over upon ice-floes: Bare Firth, from “berr,” bare, which has been proposed (Longman, p. 33), is a mere error. It is the longest, if not the largest, feature of this coast, except Reyðarfjörð, which lies to the north, separated by three minor inlets. The “look-out” stands, according to nautical charts, in N. lat. 64° 39' 45", and W. long. (G.) 14° 14' 15" (in Olsen 14° 19' 47"), the latter supposed to require correction. The difference of time from Reykjavik is about 30'. The variation (west) diminishes: it was laid down at 39° or 40°, but on May 18, 1872, Captain Tvede made it 35° 15'. Here local attractions, often causing a difference of half-a-point within a few hundred yards, would puzzle “George Graham of London.”

interior: perhaps the snow and ice may be melted by volcanic eruptions. Klofajökull would mean the crevasse glacier, and its nature is said to justify the name. The total area, 3000 square geographical miles (115 by 60, according to Baring-Gould), has been reduced by Dr Lauder Lindsay, utterly without reason, to 400. The volcano hidden within the white depths is placed, by the best authority, Síra Sigurður Gunnarson, on the north-eastern mid-arc of the Skaptárjökull (N. lat. $64^{\circ} 17'$ to $20'$, and W. long. $30^{\circ} 20'$). Its smoke has been seen at Úthlíð, south-west of the Geysir, and the people of Berufjörð attribute to it the fog and ash-mist which prevailed between August 18 and 24 of 1872.

Mr James Bryce says of the Vatnajökull, "One tremendous mass, out of which the highest peaks of the island rise, has never been crossed, and never will." I see no reason to admit him even among the minor prophets. In early days attempts were made to penetrate from the north. The Landnámabók (part iii., pp. 257, 258) tells us, that Bárðr sun Heyángursbiarnar (Bardus filius Heyangur-Biörnís), who had settled up the Skjálfandafljót (river of shivering or earthquakes?), hoping to find a milder climate on the southern coast of the island, began to travel in spring, "per *Vonarskardum* (crenam spei) cui postea nomen est *Bardargata* (Semita Bardí); ille postea Fljótshversum occupavit, et Gnupis habitavit, tunc cognomen Gnupa-Bardus (Gnúpa-Bárðr) adeptus est." Bárðdalr is still known upon the middle course of the Skjálfandafljót, and Fljótshverfi (flood-village) lies east of the Blængr cone. Thus the old man crossed from north to south, along the western skirts of the Vatna- and Klofa-jökulls. The northern counterscarp was visited early in the present century by a party of Danish officers, who, in the attempt, lost a number of ponies through cold and hunger. In July to August 1838, Professor Gunnlaugsson, accompanied by Síra Sigurður Gunnarson, travelled along the Vatnajökullsvegur, which subtends the north-west, passed the Kistufell, where the west Jökulsá rises, during the night, or when a fog hid it; crossed the upper waters of that river, and struck the Brú (bridge) on the eastern "glacier-river" of the same name. Hr Guðmundsson, of Reykjavík, subsequently visited the Blængr cone, an extinct volcano at the head of the Skaptá-Kuði valley,

to the south-west of the Klofajökull. He advised me to travel inland from Hekla, leaving the Skælingar (scowling) peaks to the left or north; to rest at the fine Búland farm; to cross the Skaptá, and to attack the glacier from the Blængr, where the approach is easy, and whence he saw neither lakes nor crevasses. I also heard of another attempt to penetrate from the Skeiðará valley, which lies west of the Örafajökull; it failed, but no further details were procurable.

In the summer of 1871, a stout-hearted attempt to penetrate from the south was made by a young law student, Mr Watts, of the Middle Temple,¹ who, accompanied by Mr Milne, reached the large patch of forest called in the map "Núpstaðarskógr." Hence he made for a crooked cone lying west of a black rock, but he was compelled to beat a retreat. No Icelander would be persuaded to risk life or limb. The travellers had no snow shoes to prevent their sinking thigh-deep at every step, and, having neglected ladders, they were obliged to throw their packs across, and to leap the numerous little crevasses; moreover, the intense cold robbed them of sleep. After his return, he described the Vatnajökull as "at once a volcano and glacial region of immense extent, within which there is reason to believe that many active craters (?) are included. Vast streams of lava, of a magnitude unparalleled elsewhere (?), have issued from it, both in pre-historic and in historic times. Surmises of the vaguest character have been formed respecting the interior, which may possibly include fertile valleys, the resort of the reindeer for winter quarters (?). It is encompassed on all sides, as far as the traveller could judge, by a desert formed by the action of the sea, huge lava-streams, and fragmentary ejections, and *detritus* brought down by the flooded rivers incidental to volcanic eruptions. The south base of the mountain is composed of repeated layers of basalt, over-

¹ Mr Watts, who is now publishing an account of his march, and who has started a third time for the Vatnajökull, gave me this list of stations:

1. Reykjavik to Reykir.
2. To near the Tindafjallajökull, south of Hekla; very rough path.
3. Over the deep Mælifellssandr to east, where the valleys are grassy.
4. To the Búland farm.
5. To Kirkjubær cloister, on the Skaptá.
6. To the Núpstaðr farm, a long day's march. Here provisions and forage are procurable.

lying the older tufas (Palagonite?), over which many lava-streams had flowed at various times, while beyond this, apparently, lies a huge glacier, through which many extinct as well as active volcanic vents have penetrated."

Mr Watts has twice renewed his attempt (1874 and 1875), and his stout heart deserves, if it cannot command, success. He strongly advised me to avoid the Beruffjörð line, and there, I think, he was wrong. The Journal will enter into details; suffice it here to say that there are two roads perfectly practicable. One which we did not visit ascends the Fossárdalur and strikes the Axavatn (axe-water) and Líkárvatn (lyke-water lake?), tarns which many Icelanders have visited: thence the traveller would ford or boat over the upper waters of the Fljótisdalur and the little Jökulsá, which latter leads directly into the north-eastern Vatnajökull. The other, *viá* the Lagarfjót, will be described in the following pages. Both offer the great advantages of saving a week's hard travel to man and beast, of sparing supplies, and of offering a choice of places where depôts can be established.

We found three dwarf landing-piers at Djúpvoggr; and that to the east, with its double tramway, was a queer contrast with the popular anchor, four upright cask staves, and two below, containing rough blocks of basalt. A hospitable reception awaited us from Hr N. P. E. Weywadt, the principal agent for the comptoir, and his brother Captain H. R. Tvede, both Danes: the latter has travelled far and wide, he has served in the United States navy, and his abundant information is freely retailed. The former occupies the block of building, tarred wood as usual, to the west of the baylet, containing the dwelling-house and sundry stores. The windmill, little bigger than a man, a common labour-saver in these regions, is rudeness personified. The toy sails of sacking work a perpendicular cog acting upon a horizontal wheel, whose square iron spindle turns the stone: the rye is placed in the hopper or upper case provided with a shoot; the damsel is a nail worked by the spindle, and, as there is no vent in the bucket, the flour must be baled out with the hand. The stones are taken from the quern, and indeed larger sizes are not wanted. These primitive articles make better meal than the

mouldy imported flour. Finally, the "wind-house" crowns an adjoining nub of basalt. Facing it is the boiling establishment, a large wooden shed like an Iceland church, containing thirteen vats, an iron pan, and a smithy in a detached hovel. On the hill behind is the "look-out," which becomes important when steamers are expected. South, or at the bottom of the baylet, lie two double-storied black houses, with white windows, Captain Tvede's stores: we were comfortably lodged in the upper floor. The climate here is exceptionally genial, less severe in fact than that of Scotland. The north wind is cold and clear, the south wet and warm, the east raw and clammy, and the west mild and muggy. It is reported that an observatory will be established at Djúpivogur. Little farms, provided with nets against sheep, are scattered all around, and Hr Weywadt rents a large tract of ground which we shall pass going up the firth.

I spent some days at the mouth of the Beruffjörð, coming and going, and had a good opportunity of studying the whale fishery. A company was established by Captain Hammar, a Danish officer, who afterwards went to Russia with the object of teaching the use of strychnine and curari—here the people opposed him as much as possible, declaring that the flesh, which is poisonous only about the wound, would kill men and dogs.¹ The chief objection is that the animal sinks, and does not rise till some two days after death, causing frequent loss. The first year brought in \$10,000; the second, \$5000; after which the concern was sold to three capitalists, under whom the shares fell 95 per cent., with a loss of \$300,000 to \$400,000.

¹ Mr Tom Roys, an American, accompanied by his four brothers, established himself at Seyðisfjörð, and used a rocket harpoon patented by himself, and so much "improved" that it will hardly leave the gun: the shell explodes in the body, kills the animal instantly, and, by generating gas, causes the carcass to float; if not, the defunct is buoyed and landed at discretion. He first hunted with a small sailing craft, and in 1865, after bagging seven to eight animals, each worth \$2000, he brought from England a screw of 40 tons burden to tow his whaling boats. He calculated that 365 whales would allow 1 lb. of food to 68,000 souls every day in the year: he also proposed pressing the meat for feeding dogs and fattening pigs (!). In that year his total bag till August was twenty-five whales, of which he landed thirteen. I was told, however, that the speculation proved a failure, and that Mr Roys went off to Alaska. At Seyðisfjörð, distant two days' march, there was a Dutch steamer, which last year had killed thirteen whales. When reduced to the last extreme, we thought of travelling home in her, but future explorers must not count upon such opportunities.

The Iceland whale fishery, famous during the last century¹ all round the island, ceased about the middle of last century, when better grounds were discovered: the result is that the animals have increased abundantly. The natives declare that there are thirteen species, but of these doubtless some are *Delphinii*. The following are the four best known:²

1. *Balæna mysticetus*, or "right" whale of Greenland and the South Atlantic; *la baleine franche*, which lacks dorsal fin, is found off the north coast, but was never seen here by living man.

2. *Balænoptera a gigas*, or humpback whale, whose fins, despite the name, do not form wings: it is the biggest, averaging seventy to eighty feet; it contains the best and largest quantity of oil, and its colour is whitish, with wrinkled belly.

3. *Balæna physalus*, herring or sulphur whale, containing far less blubber than the preceding.

4. *Balæna rostrata*, the yellow-brown finback, or round-lipped whale, whose forefins are some nine feet in length: it is the smallest, the liveliest, and the most powerful; it frequently ascends the firths, and it is known by throwing the highest jets.

The animals are wild and wary, probably the result of clear water, and do not allow themselves to be approached in steamers: they are harpooned from boats using four to six oars. The latter three being "finners" (*Physalus antiquorum*), do not produce much—fifty barrels would be a fair average. The carcass is cut up on

¹ Uno Von Troil (129, 130) gives interesting notices of the whale. He divides the mammals into two kinds: (1.) "Skidis-fiskur," or smooth-bellied, with whale-bone instead of teeth; the largest, "Stettbakk," or flat-back, measures nearly 200 English feet, and the "Hnufubakk" is only 50 feet shorter. Of the Reydar-fiskur, or wrinkle-bellied (No. 2), the largest is the "Steipereidur," attaining nearly 240 English feet; the "Hrafnreyður" and the "Andanufia;" all are considered very dainty food; and the Icelanders say the flesh has the taste of beef. The whales with teeth are (1.) the eatable, such as the Hnysen, the Hnyðingur, the Hundfiskur, and the Maahyrningur; and (2.) the ice-whale, or uneatable, with its subdivisions, the Roðkammingur and the Nähvalur, were both "forbidden as food by some ancient regulations, and particularly by the Church laws. The Icelanders believe that the first sort are very fond of human flesh, and therefore avoid fishing in such places where they appear." The carnivorous whales were frightened away by carrying: "dung, brimstone, juniper-wood, and some other articles of the same nature, in their boats"—an idea worthy of the black tars who navigate Lake Tanganyika.

² Professor Paijkull adds the Reyðr (whence Reyðarfjörð), *Physeter* or *Catodon macrocephalus*, a large spermaceti whale; he also gives to the Iceland waters the Arctic walrus (Icel. Rosm-hvalir; *Trichecus rosmarus*), and the narwhal (*Monodon monoceros*). The Sagas specify twenty-five kinds of whales.

the strand; and the fatty matter, after being kept for some three weeks, when it supplies more oil, is boiled down. The belly, which contains no blubber, yields the favourite food, "Rengi:" when fresh this yellow-white layer between the Spik (speck) and the Thersti (flesh) is mistaken by the ignorant for beef and pork, while connoisseurs prefer it to any meat, especially after it has been soaked in vinegar or sour whey. The whalebone is sent to England, where, according to Mr Consul Crowe (loc. cit.), "it appears to be used for making Prussian blue." The oil is employed in tanning: the first boiling, of course, is the clearer, and the second is browner, with more "foot."

Shark-hunting is a popular pastime, here as in "Colymbia," being more profitable to the Icelander than the whale. It is chiefly the *Scymnus microcephalus*, or Greenlander, called by the people Há-karl¹ (pronounced *Hau-karl*); it may average 18 feet in length, and attain a maximum of 25; the back has two small fins, and the liver, which extends nearly through the whole body, may yield two barrels of oil, each about 140 quarts. It is dangerously voracious; we never hear of accidents to men, for the best reason, they do not bathe; but it tears steaks from the whale's sides, it devours dead reindeer (?), porpoises, seals, and cods, and it does not despise a pair of boots. The *Scymnus* much resembles the sunfish or basking-shark (*Scyllium maximus*), which is caught off western Ireland between May and the end of June; the southern monster, however, ranges from 20 to 50 feet in length, and its dorsal fin stands like a gigantic ploughshare about a yard above water. The ova of the Há-karl, nearly the size of hens' eggs, are produced in July and August, each shark yielding about half a barrel full. The skin is grey, coarse-grained, and incapable of being polished, but it is valued for shoes.

The sense of smell is said to be highly developed in the Há-karl; on the other hand, it is dim of sight as the elephant, the

¹The Ork. Hockla is the dog-fish, *Squalus acanthias* or *archarius*. Mr Vice-Consul Crowe gives the names "Nákarla or havkalur," probably misprints; he adds, however, that the Greenland shark rarely attacks man unless molested by him. This assertion, which is made in all popular books, may, I believe, be modified by the reason given in the text. He also tells us that the hide is cheaper than either seal or lamb skin, but is neither strong nor durable—this again I doubt. The Greenland shark is called by some travellers Háskerðingr, and it can swallow, they say, a reindeer.

horny covering of the eye attracting the parasitical whale-louse (*Lærmōdipoda*, *Cyamus*, etc.), which often invest the whole organ. Its vitality is familiar to all who have seen a shark cut up, and tales are told of its swimming round the vessel after being ripped up and losing its liver. This carnivor is caught near the eastern coasts, in 60 to 80 fathoms. On the north it always hugs the land between November and March: in summer it goes out to sea, and it sometimes lies in a depth of 300 fathoms. The usual "sharkers" were half-decked affairs, ranging from 20 to 25 tons, with a crew of six to eight men: they were preferred because heavy grapnels and hawsers are not required; moorings could readily be shifted, and, being low in the water, the prey could be more easily hauled in.

Off late years the craft used on the north side of the island are decked vessels of 35 to 54 tons, provided with oars, and so lightly built that in calm weather they can easily move from place to place, and get clear of the ice. They lie in preference off the rising edge of a bank, the anchor being generally a four-pronged iron grapple, weighing about 180 lbs., with 15 to 20 fathoms of $\frac{3}{8}$ -inch. chain-cable, and a 350-fathom hawser. If nothing is caught, the position is shifted until the shark is found; and if the latter is good, the vessel remains at the spot, and rides out the storms. In calm wintry weather the fishermen venture their small boats, and if fortunate they may secure within a couple of days fifteen barrels of liver per crew.

The lines used are thick as our deep-sea log-lines, fastened to three fathoms of chain, weighted in the middle with leads of 10 to 13 lbs. Under this is attached a strong 6-inch iron hook, notched inside to prevent the bait slipping: the latter is generally horsemeat, which has been soaked in blood, or seal-blubber which fetches a mark and more per pound. When hauled up to the surface, the captive is made fast with a rope attached to the craft, and killed with a lance; the belly is ripped up, the liver is stowed away, the gall is preserved for soap, the head is cut off, and the carcass is slung alongside the vessel. "The stench of the dead shark is so intolerable that it cannot be taken on board; but the reason for keeping it is the fear that if the live ones were allowed to glut themselves on their dead comrades,

they would no longer take the bait so readily; for they are so voracious that often only a portion of the shark caught on the hook reaches the surface, the others having partly devoured the wounded monster on his passage upwards. So firm are the fishermen on the west coast in this belief, that they have petitioned the legislature to enforce by law the keeping of the carcasses alongside as long as the fishing lasts. This opinion, however, is not shared by all the shark-fishers, and is open to doubt."

The value of a carcass on shore is about 7s. 6d. A moderate-sized shark gives two-thirds of a barrel of oil, and three barrels of liver yield on an average two barrels; the former each worth between 37s. and 50s., and the latter from 55s. to 125s. The chief markets are Sweden and Germany, where it is largely used for tanneries. The high odour of the comptoirs arises from the liver being kept for some three weeks, under the idea that the supply is increased. The skin is pegged out on the ground to dry, and the flesh, especially of a kind of dog-shark, is sold. The latter is buried for some months above high-water mark; a year is better, and two years make it a delicacy. This *bonne bouche* has a clear, yellow, red colour, with somewhat the appearance of smoked salmon. Indigestible as all sharks' meat, it is peculiarly "staying" food, and a couple of ounces will satisfy a man for the day. According to some travellers (Dillon and others), this "crack-dish" communicates its rankness to the eater, who is unapproachable for three weeks; but I never observed the fact; nor did I find that the prepared flesh was unpleasant to the nose, "its presence in a room being very perceptible." Mr Crowe adds that the peasants often burying it in the ground for two or three weeks, take it up, wash, and cut it in strips, which are hung for a year in the drying house before being considered fit for food. Finally, it is never used here, as in Maskat and Zanzibar, when in the state which may mildly be called "high."

At Djúpivogur we found the usual species of fin. The white fish is caught by long lines laid at night, and hauled in next day. They carry 200 to 300 hooks, but they are miniatures of the giants used by English fishermen in the North Sea, which

are measured by miles. The flounder, the halibut (Heilag-fiski, Helligflynder, *Hippoglossus pinguis*, or holy flounder), and the red-spotted plaice are favourites, despite want of flavour: the dried skate is the bread of this ichthyophagous race, and the fish has passed into a proverb for voracity—"he eats everything that comes in his way like a skate." I heard reports of enormous squids, the skate-whaals of the Shetlands, which may easily have given rise to the "Kraken" tale. Specimens have been seen from Zanzibar to Newfoundland, where cuttle-fish (*Architeuthis monachus* and *A. Dux*, *Steenstrüpp*) have been found with bodies 15 feet long by 19 inches diameter, and "extensive arms of unknown extent." The "Great Cuttle-fish" is the Dragon of Polynesian mythology (p. 209, *The Emigration of Turi*), and it pulled down canoes unless killed by the axe. The Calmar de Bouguer, so called from the officer commanding the aviso "Alecton," was attacked in 1861, off north-eastern Tenerife, with bullets and harpoons; this *piuvre* is described as 18 feet long, and beaked like a giant parrot. Moreover, the lumps of rock rising suddenly from the smooths and lines of ripple, viewed through the evening fog, must have kept alive the haunting idea of the kraken. The Great Sea Serpent, or Soe-orm, *alias* Aale last (*Serpens marinus magnus*), appears in the pages of Bishop Pontoppidan as an impossible snake, with crescental coils disposed perpendicularly instead of horizontally. Although Professor Owen determined it to be an otary, the fact is not "proven;" and of late years it was revived as a gigantic saurian which has escaped the general destruction of his race. Similarly there is an immense mass of evidence in favour of the Lind-orm or great land serpent. We find him in Livy, Pliny, and Strabo; and Regulus saw him at Bagrada stretching 100 feet long. That most conscientious traveller, Dr de Lacerda, relates that when voyaging up the Brazilian Tiété, his slaves sat down upon a trunk, which proved to be a snake; and I brought home traditions of his having closed a path to travellers in Eastern Intertropical Africa.

SECTION III.—TO BERUFJÖRÐ: UP THE FIRTH.

At Djúpivogur we met Hr Oddr V. Gíslason, a “Candidatus Theologiæ,” who had visited England, and had published an Icelandic primer (*Leidvisír*, Reyk., 1863), which he dedicated to a friend, the late Hermann Bicknell. At the capital, where his wife remains, he acts as Lloyd’s agent, and in the east he collects ponies and sheep for Mr Askam. His local reputation as a shark-fisher and a *viveur* stands tolerably high, but he can work hard when he pleases. This worthy at once applied himself to buying bát-ponies, and to hiring a guide, whose perfect and well-known uselessness deserves notice.

Gíslí Eyriksson is a good-looking man of thirty-five, with blue eyes, aquiline nose, and a full blond beard. Formerly a day labourer, he prefers to be an able-bodied pauper; the sturdy vagrant owns two nags, yet he has thrown his loafing self, his wife, and his three children upon the parish. His only merit is not drinking; and the women pity him because he is pretty. An Ebionite from the womb, a Lazarus with the tastes of Dives, the invertebrate creature is soft as a girl; he dawdles limp as a negro; he malingers, pleading a bad knee to attract compassion; he makes everybody do his duty; he is ever in the kitchen, never at work; he breaks everything he touches; it makes one’s fingers tingle to look at him. Presently he will strike for more pay. Meanwhile he is the picture of the Prodigal Son in Iceland garb: his stutt-buxur,¹ the pointed and buttoned overalls, said to have been imported from Scotland by King Magnús Berfætti, are in rags and tatters; his stirrups are knotted cords, and his bridle is a string. Inconsequent as a Somali, he drops his fragmentary Svipa (whip) every hour, and he manages even to lose his knife. We engaged him for 4 marks per diem; the “dog of an Icelander” swore after return that the wage was \$1, 3m.; and when he received his \$29 he mounted his nag and joggled leisurely home.

¹ Properly short-brecks, or curt-hose, from Stuttr, stunted, stinted, scant (Cleasby).

July 30.

We sent on our ponies, the first detachment, during the thick fog of morning, the warm moist sea-air showing 73° (F.), condensed by the black and white heights; and in mid-afternoon, we set out for Beruffjörð in Captain Tvede's whaleboat. It had a centre-board after approved fashion, but no sail to catch the fair wind from the Fjörð-mouth. The crew consisted of two Icelanders, who, accustomed to the silly narrow blade, the "mos majorum," were unable to handle the broad oar; the two coopers, a Dane, and a German who disliked soldiering at home, did much better. As the mist lifted we enjoyed the views upon the firth, which our patriotic captain compared with the Organ Mountains, Rio de Janeiro. Yet there is abundant Icelandic physiognomy in the Fjörð viewed from above, especially when the sun is slightly veiled and the shadow of the mist falls upon the wild forms with a pale, unearthly glare. As a rule, too, there is a distinct circulation, an indrift of lower and an outdrift of upper cloud; the effect of the double winds, so common in maritime Iceland, and very striking to the nephelophile. The rival shores contrast sharply. The northern, especially about the Berunes chapel, has broader flats and more frequent farms, backed by the stepped copings and the buttresses of the Strandafjöll. The trend is to the north-west, where quaint and regular castellations, either rising sheer or based upon *débris* disposed at the natural angle, are divided by deep gaps and fosses. The eastern sky-line is broken into crags which appear a mass of ruins; in places the capping is a single stone, a needle, a column, a Grettis-tak (logan-stone), or an "old man;" here falls a sharp *arête*; there towers a pyramid, which viewed at another angle proves to be a headland. The general form is not unlike those dolomites which Sir Humphrey Davy mistook for granite. A remarkable band of green Palagonite, locally called "petrified clay," dips waterwards at an angle of 37°; it crops out north at Breiðdalsvík, and it is said to be traceable southwards for a two days' march.

The fronting shore begins with a fringe of rocks and skerries; the Fiskenakketange baylet is mistaken at night for Djúpivoggr; and the inner and outer Gleðivík (gled-wich), the Indre and Ydre Glæding

of old Danish charts, are especially rich in "rognons of rock." The uplands are formed by masses of trap, with drops and slopes cut and chasmed, at right angles, by gashes and ravines bearing a thin vegetation. We are shown the Teigarhorn (paddock-horn) torrent, about a mile and a half from Djúpivoggr; here fine zeolites are, or rather were, found, and Iceland spar is known to exist—unfortunately the farm is Church property. The only important feature is the Búlandstindr, whose north-eastern pyramid, laid down at 3388 feet (Danish), makes an excellent landmark for those coming from the south; the grim black wall bears snow on the northern exposure, and the easily breaking stone renders the ascent unpleasant. At five P.M. we passed the Gautavik (Gothwich) farm, about a century ago the only trading comptoir, dating from the days of Burnt Njál. Some forty-five minutes afterwards we touched at the excellent anchorage of Staulovik, to land Hr Gíslason and a very small boy carrying a very very large jar of rum. Shortly afterwards we opened on the right bank Fossárdalur, which bounds Búlandstindr on the north: here the strata rise waterwards at an angle of 28°. The vale, faintly green, is called Viðidalr in the upper part; it is the directest line *við* Keldadalr (well-vale) to Fljótsdalr, immediately east of Snæfell, but there is no bridle-path, and the compass must be the only guide.

The channel was not wholly desert, we met two boats; the sticks planted upon the islet-rocks, the Æðarsker, and the Æðarsteinn, showed it to be an eider-firth, where the intelligent seal well knows that he may not be shot, and where ravens flock in forlorn hopes of a duckling. "Faraóslíð" is the folk or cavalry of Pharaoh, for that wicked but debatable king, so great is the might of myth, has colonised even Ultima Thule; and his lieges still become men and women, laying aside their furs, on the eve of St John. They give rise to a multitude of proverbs, *e.g.*, "'Too near the nose,' as the seal said when hit in the eye." Phoca here forms part of the parson's flock. They are tame as porpoises. The cows are never killed, and the young are spared; when a battue of men-seals with gun and club takes place, it is during summer. These mammals are most numerous on the southern and eastern coasts; here in one spot we count fourteen pair of eyes quietly but persistently prospecting us. As the fine is

three marks for firing a gun within a mile, and the flesh is the best possible shark-bait, we are consulted upon the subject of air-canes.¹ "Krummi" (crook-bill), the raven, whose size has been exaggerated by travellers, is everywhere in Iceland an unmitigated pest, and he shows the unbecoming familiarity of the "ghurab" in Somaliland. His impunity may be due to his cousin the corbie's sentiment:

"Ho, ho, ho! said the old black crow,
For that nobody will eat him he very well doth know."

Perhaps some survival of old paganism may preserve the "yellow footed bird in the inky cloak," who became black by reason of his sins: Odin's hawk, the "black cousin of the swan," who appeared in the traditional oriflamme of the Norsk Vikings, and who still survives in the lines:

"Though Huginn's (Mind's) loss I should deplore,
Yet Muninn's (Memory's) would affect me more."²

Hence, possibly, the prevailing superstitions, *e.g.*, that Ralph combines eccentric habits with human intelligence; that he is a bird of augury; that he holds a Hrafna-Thing (council) in autumn, to billet the several couples; that every church has its own pair; that Grip does not plunder the farm nor fight the dogs of those who lodge the Grips; and that he warns the owner of dead sheep. The Raven's Song (Krumma-Kvæði), a dialogue between "Hrafn" and a peasant, is well known, whilst the Hrafna-galdur

¹ Iceland does wisely to preserve her seals. Argyleshire in the olden time, and especially the holms south of Skye, were famed for them; now they are very wild and not likely to be caught basking on the rocks, or bathing in shallow water. Old bull seals, who may measure 5 feet 6 inches, are wary in the extreme, and seldom allow the use of the club. Phoca must also be hit on the head, or the hunter will see no more of him. In Greenland the packs have been almost killed out by the scores of vessels which Dundee and Peterhead, Norway and Sweden, Denmark and Germany, send every year, and it is reported that without a "close time," the breed will become, like the oyster and the crab, almost extinct. San Francisco has been sensible enough to preserve the flocks of Proteus by the strong arm of the law—I wonder if grim old "Ben Butler" still tries to stare man out of countenance as he floats off the Ocean House.

² Mr Blackwall satirically suggests that our Huggins and Muggins may descend from this respectable parentage, whilst he trusts that the Smiths, Smyths, and congeners, "will duly acknowledge the sturdy Scandinavian yeoman, Smiðr Churlson, grandson of the jovial old fellow, Grandfather, who had the honour of pledging a bumper with a celestial deity, as their common ancestor."

Öðins (Odin's Raven Song) is a miracle of mystery. Ralph's croakings were and still are omens, betokening death when heard in front of a house, and he has appropriated a variety of proverbs. Perhaps this sentiment prevented the Northerner "improving the subject," as did blind Herve in the Breton verse, "When you see a raven fly, think that the Devil is as black and as wicked. When you see a little dove fly, think that your Angel is as sweet and white." Thus after St Vincent was beheaded, all the Grips that alighted upon his corpse fell dead; on the other hand, Ravenna owes her name to the fact that ravens, crows, and jack-daws flocked from every part of Italy to take part in the feast of St Appolinarius. In the Færoes the bird of the "brook Cherith" has lost all his Odinic reputation; he is easily killed when the snow drives him to the farm-house, and four skillings are given for his beak. Perhaps instead of being slaughtered, he might be exported to England, where he would now command seven shillings. According to the people, he is not invincible, being often beaten by the agile sea-pie (*Hæmatopus ostralegus*, the Sceolder of Shetland), and sometimes slain by the strong-billed sea-parrot (puffin).

As we approached the bottom of Berufjörð, we could see the snows over which our path would lie, and the "gurlly flood" dashing down the broad steps of trap. It drains the Axarvatn, the "Axe-water," so called from its shape; it is said to be rich in trout and fish, but Mr Pow, who was of the party, found it far too clear and cold. After a pleasant row of twelve miles in about three hours, we reached our destination, and the "new chums" derided the place which appears so large upon the map. Berufjörð is, in fact, nothing but a Prestagarðr (parsonage) and a chapel, the latter distinguished from a stable only by the white cross, episcopally commanded; the doors hang about, and there is a sad want of paint. In Iceland the clergyman often moves off when his church wants repair, for he must pay the expense.

We were courteously and hospitably received by Síra Thorstein Thorarensen, who was busy in his tún superintending the day-labourers. It is the hay-harvest, the only harvest that Iceland knows. The men ride to and from their work, ply their ridiculous scythes, and, besides being fed, are paid per teigr (80 square feet)

1 Fjórðung¹ = 10 lbs. of butter, here worth 2 marks per lb. An active hand at this season can make \$2 per diem, 11 marks being the average; many farms are nude of males, and consequently guides in August are scarce and dear. Hay, which fetches 1 mark per 10 lbs. in winter, now sells for \$2 the kapall² (horseload, or 240 lbs. Danish); and as the ton in Scotland costs at this season only £1, 10s. to £2, 10s., Mr Pow scents a spec. That evening passed in the confusion of sorting goods and sending back all articles not strictly necessary; it was far into the small hours before we could settle ourselves upon the rotten boards, and under the hideous crucifix which, forming the chapel's altar-piece, carefully avoids breaking commandment No. 2.

July 31.

Whilst awaiting the arrival of our carriage, Captain Tvede volunteered a walk up the Berufjarðarskarð, which crosses the northern wall of the firth, and afterwards anastomoses with the road to Thingmúli. This part had not undergone its annual repair, and it was painfully pitted with horse-traps, deep holes. The lower part was an avalanche line:

“Interdum subitam glacie labente ruinam
Mons dedit, et trepidis fundamina subruit astris;”

but “interdum” hardly applies to what happens annually from these “thunderbolts of snow.” To the right lay Sóta-botn, a huge hollow, probably formed by hydraulic pressure, the sinking of a mountain-stream, a common feature in the Brazil. As Sóti and his wife Bera (the bearess), a name often given to women, were riding home over this pass, their enemies raised a magic fog; he broke his neck by falling into the pit; she broke her head as the famished horse, to whose instinct the rider had trusted, rushed into the stable—the site of the latter is still shown near the parsonage. Bera's cairn lies at the top of a little promontory at the north end of the Fjörð, where her ghost sits gazing upon the

¹ A fourth; hence our farthing.

² Evidently from Caballus, the word which has so successfully ousted the more classical Equus. The Dictionary makes the horseload = 5 trusses; Uno Von Troil, 12 to 15 lispunds, each about 17 Eng. lbs. avoird.

ever restless tide.¹ The picture was diversified by an advance of white mist; its fragments, forming a vanguard like a flock of wild geese, with abundant play and movement presently invested the shallow cupola of Thráandar Jökull, whose brown clouds were its own growth: at times it melted under the sun, and presently it renewed itself in the cold wind of the firth and in the colder breath of the snow-clad summits. Finally, it settled upon the mid-ridge, making the upper half appear miles away from its base.

After a two hours' stroll we reached the Bitruháls, or *col*, which stands over 2000 feet above sea-level.² On the left hand rose Kistufell, the apex where the Danish officers placed a landmark: the summit must be at least 1000 feet higher than the pass. Through the reek and dance of the morning air we looked down upon Breiðdalsvík; the Broad Dale is parted into a northern and southern feature by "Möleyri," a great spine of trap, and the nearer section is split by three large perpendicular Gjár. The winding Breiðdalsá, which has a fork for each valley, is clear and limpid, very different from Jökull water; and large farms are scattered everywhere about the soles. The northern face of the Berufjarðarskarð is even more striking than the southern; the "Vandyke cliffs" have all the tints of Brazilian Tauá; nowhere does Iceland show more colouring. The red, pink, dead-white, and pale-green Palagonite follows the torrent-beds and girths the rivers; and the singularity is increased by walls and outcrops of the hardest and blackest hornblende, building dykes, bridging chasms, and causing the snow-streams to breach over in cascades. Farther down there is a vein of glistening trachyte celled with iron, probably a prolongation of the Skriða hills, which we shall pass farther north; afar it looks like plaster

¹ Mr Jón A. Hjaltalín informs me that on the borders of Norway and Sweden several local names are called after Söti and Bera, and the legend may have been transplanted to Iceland. It is not found in the list of Sagas quoted by the Cleasby-Vigfusson Dictionary: I am therefore inclined to refer it to the sea-rover Hallvarð Söti, of whom we read, "Thence Kol steered his course out of the river to Norway . . . and came on Hallvarð Söti unawares, and found him in a loft. He kept them off bravely till they set fire to the house, then he gave himself up, but they slew him, and took there much goods" (Burnt Njál, ii. 2).

² The aneroid (compensated) showed 27·63; the thermometer, 67° (F.) in the open air. On the return march, the former was 28·08, and the latter 76° (both in pocket). At sea-level the instruments stood at 30·04 to 30·12, and 63° (F.).

fallen from a wall. The valley is scattered over with chalcidones and crystals of lime, the produce of geodes washed out of the trap, and with jaspers, especially the red, green, and banded; Hr Gíslason's "copper ore" is probably nothing but burnt or corroded "yaspis." Along the stream-banks grow yellow poppies (*P. nudicaule*; Icel. Mela-Sól), with small lemon-coloured flowers and large spreading roots; they extend to Spitzbergen, and the last time I saw them was in the Desert of the Palmyrene.

Down the northern descent, which is rapid but provided with a good causeway *à tourniquet*, runs the eastern road to Seyðisfjörð, firth of the Seið or *Gadus virens*, the abode of many merchants, distant some sixty miles from Djúpivog: the western *viá* the Öxarheiði (ox-heath) is generally preferred because it crosses two instead of three great divides. The line to Thingmúli turns to the left, repeatedly crosses the southern Breiðdalsá, and ascends by another newly built causeway, the Breiðdalsheiði, where there is a nameless lakelet, neglected by the map, which discharges the southern Broad Dale fork.

SECTION IV.—TO THE MÝ-VATN: THE SEVEN DAYS' RIDE.

July 31 ended with a "sea of troubles." Captain Tvede and Mr Pow left us, greatly to our regret, and no one seemed anxious to effect a departure but ourselves. The guide skulked, the ponies came in slowly, and, worst of all, a dark march was proposed. This always appears to me the *summum malum* of travelling; it is equally injurious to strength and temper; it often wastes the next day; and, worst of all, it gives a false idea of the country.

Our party is now formed. Messrs Lock, father and son, are attended by Bowers, an able seaman, born in Jamaica and domiciled at Southampton. He is to superintend the sulphur boring; he does the work of half-a-dozen Icelanders, but he has seldom been aboard a nag; and the honest fellow is apt to forget the adage, "astern of a sail and ahead of a horse." Besides Gísli, the skulk, we temporarily engage for nine marks per diem Hr

Hoskuldur Guðmundsson, who is *en route* for his father's house. Hr Gíslason, wishing to attend a fair, accompanies us for the first march. The kind and obliging parson, after feeding us with fish, mutton fresh and dry, sharks' flesh, and seals' haslets—good with vinegar, but even then somewhat too oily—and after insisting upon sundry stirrup-cups of "Iceland wine" (schnapps), determines to start one of the most disorderly of caravans.

We have a total of nineteen ponies all under six years, which would be four-year olds in England, and with the nineteen never a rope. For the most part utterly unbroken, they break away and lose our time; disgusted with their loads, especially with the long boring-rods, they kick and bite, requiring constant reloading. Consequently, Mr Lock misses a carpet-bag, which contains only his money and his papers, and all our baggage suffers more in ten hours than in a year of railways. The commercial complication was enormous; almost each animal had its own hire; one was to be left at this place; two were to be sent on to that: we took the wrong ones with us to Mývatn, and consequently we were threatened with a lawsuit. Mr Lock (*père*) has a *largá manu* manner, but he is strongly imbued with the Anglo-Saxon "idee," to wit,

"The grand idee that every man jest do what he dam pleases."

He compels the most headstrong to obey him; he remembers the adage, "In Iceland if you want anything, ask for it;" he takes high ground, and he "puts up with no nonsense." The people, gentle and simple, do not openly resent the novelty, but they slang him behind his back, and with a certain dry humour they dub him "Loki,"¹ the bad god of Scandinavian mythology. I can only say that the tone answered well as in Syria or Egypt.

The disorderly party set out about an hour before midnight.

¹ The name was formerly derived from Loka, to shut, like Wodan from Vaða, even as Juno a Juvando, and Neptunus a nando. The Dictionary suggests that the old form may have been Wlōka (Volcanus), the *w* being dropped before the *l* according to the rules of the Scandinavian tongue. It is strange that though Óðin, Thórr, and Loki were by far the most prominent personages of the heathen faith, the name of the latter is not preserved in the records of any other Teutonic, or rather let us say, Gothic people.

We passed in the dark a mine of magnetic iron disposed, they say, in volcanic rock. This metal cannot be smelted for want of fuel, and its only *raison d'être* in Iceland is to deflect the magnet and to make navigation and the Vatnajökull dangerous. The ugly bridle-path running up the left bank of the Axavatn, and ascending a variety of stony steps, divided by flats of deep moss, with a rare Beitivellir, baiting or pasture ground, and snow-wreaths sounding hollow beneath the tread, showed few features. Before the cold mist set in from the north, we saw at our feet the long Berufjörð, and the spectre of Thráandar Jökull, gleaming white in the pale and glaucous green light of an Arctic midnight; whilst the continuous roar of foss and torrent rang in our ears.

At the foot of the fifth and roughest grade, the Öxarheiði, we halted for a while, where the steep ascent is called, apparently in bitter derision, Vagna-brekka, or waggon-hill. The huge mountain-walls seemed to tower straight above our heads; on the right was the Haurar-Gil (crag-gil), and nearer the Manna-beinafjall, or man-bone hill, where some of Sóti's horsemen were slain. These things the good priest tells us, and then, wringing our hands and bidding us Godspeed, he rides home, bearing with him our best thanks. The very large jar of rum proved too much for one of his friends; after galloping about like one insane, changing his horse every half-hour, and drinking every ten minutes, he lay him down to sleep comfortably upon the soft, cool snow, and lost no time in losing his saddle and saddle-cloth, his bridle and his horse. He will walk into camp at five P.M. next day, sadly crestfallen, if not repentant.

After three hours, during which I felt frozen hands for the first time, we stood on the summit of the Breiðdalsheiði, and looked down upon the long valley to the north. It was a pleasant change after our uncouth way and the *panorama maudit* of the earlier night; but the sunlight, though gleaming pink and gold upon the snow hills to the north, only saddened sleepy eyes. The path leads down the right bank of the Múlaá in the Skriðdalr, a mad stream rolling reckless over slope and drop, green and blue, cold and clear, here deeply encased by huge slices of black trap, there low-banked with long streaks of red-

yellow bog-iron. The left wall was regular with gracious concave lines, ending in the lion-headed Múli, which gives a name to the Múla Sýsla: the right was a succession of buttresses, each owning its own Kvísl, or shallow drain, and the latter were *mauvais pas*, where only the cleverest ponies could spring up and down the rocks without a fall. As we advanced, the valley broadened out into flats of vivid, unwholesome green, bog and swamp spangled with cotton-grass, whose pods much resemble those of the veritable tree-wool, and which should be collected for sheep-fodder. At 9.30 A.M. we forded the stream, and rode up to Thingmúli, much to the edification of the mowers, men in shirt-sleeves and women half-dressed—

“ All hands employed,
Like labouring bees on a long summer day.”

We were not equally edified by their unbusy, dawdling ways: so at the churn the servant girls will work five minutes and rest fifteen.

As I expected, the Thursday was a *dies non*, whose only event was pancake made by the farmer's wife. We inspected the tall Múli, whose bare and ragged head of trap ends the long buttress to the north-north-east: it is bounded east by the Geitdalsá, rising in the Lfárvatn; draining, they say, the Thrándar, and uniting with the Múlaá to form the Grímsá. We botanised at its foot, collecting two equiseta, Elting (spearwort, or *E. arvense*) and Beitill (horse-tail), of which there are many varieties; the Fjóla or violet (*V. montana?*); the Hrossanál, or horse-needle (*Juncus squamosus*); the Blá-ber and Grænyaxlar or young blaeberry (*Vaccinium myrtillos*); the bog-whortle (*V. uliginosum*); the blue-bell (Bláklukka; *Campanula rotundifolia*, Hjalt.), which grows everywhere, reminding us of Europe; the small, grey birch; the dwarf-willow, all catkins; the Alpine bartsia (Icel. Loka-sjóðsbróðir¹); the meadow-rue (*Thalictrum Alpense*; Icel. Kross-gras); the fleabane (*Erigeron*; Icel. Smjör-gras) and the ephemeral Veronica. There were also the bright, yellow-green reindeer-moss; the red Alpine catch-fly (*Lychnis Alp.*); the usual “sun's-eye,” or butter-

¹ Loka-sjóðr, or Loki's purse, is the cockscomb, or yellow rattle (*Rhinanthus crista galli*).

cup (Sól-ey); the dandelion (Fífill); and the lamb-grass or moss-campion, still in flower; the bladder-campion (*Silene inflata*); the pretty, common lyng (heather); the mountain-asphodel (*Tofieldia palustris*; Icel. Sýkis-gras); and, most remarkable of all, the pale-lemon blossoms of the mountain avens already beginning to pall. The Kræki-lyng, the black crowberry (*E. nigrum*), supplied its small, red currants, sweet and mawkish, of which Bishop Pál made sacramental wine; the vine-like Hrutaberjalyng (*Rubus ling*) trailed on the sward; and the meadow-rose (*Epilobium angustifolium*; Icel. Eyra-rós) reigned queen of Iceland flora. The leafage already showed autumnal tints, yellows and reds taking the place of greens, light and dark; and the air was all alive with grey moths (Fyriræld).

An interesting feature of the Skriðdalr, or slipping dale, is the Skriða range, a name not in the map, but given to the north-eastern buttresses of the broken valley as far as Sandfell. Fronted by dark traps they rise, nude of turf, conspicuous in light-yellow skins of trachyte and Palagonite, based upon a thin and sickly green—we learned to call them the Sulphur Range. As the long streaks and gullies, the broad parting *fumaras*, and the slides and heaps of footing *débris*, show, the Skriðas are infamous for landslips and snowslips (Snæ-Skriða), the latter overwhelming túns and houses—

“ Multos hausere profunda
Vastâ mole nives; cumque ipsis sæpe juvenis
Naufraga candenti merguntur claustra barathro.”

The sole defence against these avalanches (Skriðáfall)¹ is the Skriða-garðr, a dry wall, built very strongly at the sharp angle facing the Skriða and the Snjóflóð, and repaired every year.

¹ Mr Tuckett, of Alpine fame, shows us aent this word that “strange game (Anglicè, wild-goose) has been started in the dark forest of etymology.” Like Avalasse and Avalaison (a *débâcle* of rain or melted snow), the Schnee-schlipfe is certainly derived from the low Latin “advallare,” to advance valleywards: others propose “a labendo;” “Lau,” the warm spring winds; “avalér” (*e.g.*, avaler son chaperon), the village; “Abländssch,” in French “Avéranche,” and, lastly, the German Lauwine, “Löwin,” because these avalantic descents have the rage and power of a lioness. I may add that in mountainous Europe each valley seems to have its own name, Lavena, Labina, Lavigne, Avelantze, Evalantze, Liantze, etc., etc., etc.: the giant snow-ball is called in and about Italian Recoaro “Valanghi” and “bughi di neve.”

In the evening the people began to gather for the fair, and most of them were in that state politely called "excited." One man made himself especially remarkable; with one leg shorter than the other, he was dancing, roaring, snorting fou'; his face was much knocked about; and, with his 'baccy smeared lips, he insisted on succulently kissing every feminine mouth. Mr Lock, sen., had a somewhat narrow escape from a venerable matron whose nostrils showed that she was no better in one matter than our grandmothers: she advanced towards him prognathously, when in the nick of time he turned and fled. He was much shaken, and for some hours looked pale and weak.

The evening might have been in Tuscany; and we drank coffee outside, a practice which excited general reprehension—here you rarely see a bench or seat in the open air. We were lucky in engaging a superior guide, the student Sigurður Gunnarsson, nephew of the archdeacon of Hallormstaðir; his seven years at Reykjavik had given him a tincture of English; he was good-tempered and obliging; in fact, the absolute reverse of Baring-Gould's "Grímr." Hr Gíslason, to the satisfaction of every one, disappeared with his big dog, a cur whose only idea of life was to chivy sheep.¹

Our day's march was far more interesting than usual: it lay over the long, prismatic tongue of land, a sister formation of the Múli line, separating the Grímsá from its ultimate receptacle, the lake. Amongst the scatter of farms lay Geirólfstaðir, where I slept on return: the house is partly built of greenstone. The mountain path is called, why, I know not, a "Remba," a hard road to travel, from "að rembask," to struggle with, to puff one's self up. The summit of this Hallormstaðarháls was a mere

¹ It is only fair to repeat what the *Standard* (August 29, 1874) says of this worthy: "The man to whom I should strongly advise any English visitors to Iceland to apply for advice and active assistance—a resident in Reykjavik, speaking excellent English, active and energetic, whose name is Gíslason—was, in his early days, a theological student, and previous to his ordination was appointed to the pastorate of Grimsey. He declined to go, and withdrew from the ministry. I do not know whether the Grimsey fishermen lost a good priest or not, but I know that the English gained an excellent counsellor. He is the Grímr of Baring-Gould's well-known book, but if the sketch of him there contained is at all true to the life, he must have wonderfully improved." I have spoken of him as we found him.

divide, not a *Heiði* with level ground; and from its altitude, about 880 feet, we looked down upon and around a most extensive view. Below us, and stretching to north-north-east, lay the long "broad," known as the *Lagarfjót*, a milky water evidently from the snow-mountains; and on the nearer shore, protected from the biting blasts, lay the celebrated *Skógr*, or forest of *Hallormstaðir*, straggling some twenty miles, and composed of birch-trees,

"If trees they may be called, which trees are none."

Yet from afar they act pretty well as acacias, the point-lace of the forest. To the north-east rise the nubs, heaps, and snows of *Hötrr*, the hats or cowls, and their frost-bound prolongation, the icy range of *Borgarfjörð*, and, especially, the cones of *Dyrfjöll*. But every eye turned instinctively southwards when majestic *Snæfell*, the northernmost outlier of the *Vatnajökull*, fronted by its two northern outliers, the *Hafrsfell* and the *Laugarfell*, shoots up towards the cirri and cumuli of the still air, its glistening glaciers and steely-blue sides making eternal winter in a lovely garb appear.

At *Hallormstaðir*, our first stage, we failed to find the *Prófastr* (archdeacon) *Sigurður Gunnarsson*, who had gone for supplies to *Seyðisfjörð*. His wife received us kindly with "Yule bread," containing raisins and other delicacies. She must be a model housewife; her six-gabled house was being painted; her kitchen-garden grew unusually fine potatoes; and her poultry-yard was far better stocked than usual. We were hospitably invited to pass the night, and *Gísli Skulk* looked wistfully at the comforts around him; but we were inexorable and, after a two hours' halt, began operations upon the next stage.

I shall not readily forget that march. The ponies, also, had apparently made up their minds for a half-holiday, and, when refused, they resolved to revenge themselves. Briefly, the loads were everywhere except where they should have been, and the fight at the ford was unusually severe. The bridle-path up the right bank, moreover, was bad, broken with gullies, rugged with rocks, and cullendered with holes; in places we had to avoid headlands of stony teeth by fording the waters; and, as on the skirts of *Hermon*, the ways were double, high for winter, and

low for summer. Student Sigurður explained Lagarfljót as a corruption of Laugr, a bath; others translate it the "layer" or mixed water, because composed of ice and mud. It is considered unwholesome and undrinkable. The average breadth is one mile and a half, and the people declare that the depth reaches sixty fathoms. It is formed by a glacier stream, the little Jökulsá, flowing through the Fljótsdalr or Norðurdalr, a line which we shall presently follow; and an eastern lake-stream, the Keldá, draining the Syðridalr. The latter rises in the Keldavatn, which the map writes Kelduárvatn, the lake of springs-water; and it is reached in a long day's ride from the Víðivellir, or the Klúka farm, which almost fronts Valthiófstaðir.

I had heard much of the Skógr (Shaw) of the Lagarfljót, as the most beautiful in Iceland: it probably tempted the first settler, Hallormr, to become Hallormr of the Wilderness. In other places, the freezing and thawing of the sap bursts the vessels and kills the plants. Here, however, the Birkis have a backing of heights to concentrate sun-heat, a westerly exposure, and a large sheet of water tempering the cold. The thin birch-scrub grows on all kinds of soil; mostly the trees are mere bushes, but the topmost twigs of the giants of the forest may reach twenty feet, and the timber is heavy enough to make pack-saddles. All are being felled, and none are planted; the weight of the snow is said to destroy the young trees. Nor was the Skóg a vocal growth: I listened long and in vain for the merest chirp.

About an hour before reaching the ferry we had a fair prospect of the Hengifoss, said to be the tallest cataract in Iceland. It is an Icelandic copy of the immortal Cocytus (Mavroneria) in Arcadia, with a fall six times the depth. "Hanging-force" plunges suddenly into a huge caldron, the Hengifossárgil, and is dashed to drops before it reaches the kieve, which is considered to lie 1200 feet below. Its wonders can hardly be appreciated, we were told, without entering the cavity: it faces to the south-east; and, as you ride along the lake, the strata lie exposed to sight, as in a Californian cañon. Amongst them is said to be a small quantity of Surtarbrand.

We had sent on to warn the ferryman, and Charon, Sigfús Stefánsson, of Bessastaðir, with fiery hair, clean-cut red whisker, and huge goggles, was the model of a Scotch pedagogue. Remounting, we galloped *ventre à terre*, the best cure for cold feet, over the turfy flat of the left bank, and found ourselves at Valthiófstaðir, the church and parsonage of Síra Pétur Jónsson. The house was being painted, but we found lodgings in the church: the altar candles were duly lighted, and, after doing what little we could to make ourselves comfortable, we turned in shortly before midnight.

August 3.

At Waltheofstede, whose name is distinctly Saxon, we reduced our stud to the best sixteen head; we bought ropes and horse-shoes; we mended the pack-saddles; we paid off the temporary guides; and we engaged the student Stefán Sigfússon, of Bessastaðir, who gave thorough satisfaction when he did not air his ten words of English. Whilst these preparations were being made, I inspected the premises. The farm is of old date, but it is not the Waltheofstede so pleasantly mentioned in the Landnámabók (p. 100): "Tunc servi Erics ruinam villæ Valthiofi de Valthiofstadis intulerunt, Eyolfus autem Saur (Eyólfr Saur) ejus cognatus servos apud Skeidsbrekkas super Vatnshornum occidit, eâ de causâ Eirikus Ejolfum Saurem interfecit, iste quoque Holmgangu Rafnem (Rafn, the duellist) Leifskalis interemit." Thus, in seven half lines, we have a regular monomachist, the destruction of a farm, and the murder of two Franklins, with an indefinite number of thralls. We still find a Thórdísa, in memory of old days, the granddaughter of the parson at Valthiófstaðir.

The church is somewhat larger and better, that is, more tawdry, than usual; and justly vain of it is the district. Outside it is red-striped, with gallery, tower, spire, finial, staff, and weather-cock: the latter bears the cross of Denmark, yet "Odi Danicos, sperno, contemno," is a sentiment frequently expressed in this neighbourhood. Inside it is daubed to mock marble. The bell in the loft bears for date 1744, and the altar-pieces are truly hideous: Sanctus Peterus (*sic*), with key and book, wears his glory on one side of the head, like a cavalry-

heads in thousands have formerly been seen. Here and there lingered a duck or a teal, a snipe or snippet, too wild to approach; the Arctic tern (*Sterna Arctica*, Preyer) was not coy, but a solitary skua (*Lestris Thuliaca?* Pr.), that had gone a-fishing, kept well out of our reach. A sharp canter from No. 2 lake, Gripdeilir,¹ "*Certamen ovium*," according to our literary guides, soon placed us at the lakelet and farmlet of Vetur-hús—winter-house, as opposed to Setr. It is neutral ground between the swamps, which, probably, are under water every spring, and the dry sands of the old sea-shore farther west. The owner, Páll Vigfússon, owns a boat for char-fishing, and a fine flock of goat-like sheep: his kailyard is well manured, to judge from the quantity of soft and brittle puffs (Icel. Gorkúla; *Agaricus fomentarius*), which here take the place of mushrooms.² The farm-box was a burrow worthy of St Kilda or Rona in the olden day, entered by a hall like a mine-gallery; the Baðstofa was fouler than the fore-castle of a Greek brig; and the three bunks which serve as dinner seats, as well as beds, gave one the shudders. The only caloric was the natural form, which sheep have learned to utilise; and the only chimney was a hole in the kitchen roof. Yet the farm contained provision-room, smithy, workshop, byre, and sheep-house. It was my fate to sleep there on the return march, but I persuaded the good Pauld to put me in a hay-garret. After all, we must remember Sir James Simpson's description of the Barvas district in the Isle of Lewis, where, during the last generation, neither window nor chimney, chair, table, nor metal vessel existed. What a national scandal was this barbarism!

After Vetur-hús we passed sundry farms, and we drank at every place, as if on the banks of the Congo. Men, boys, and maidens came out to be kissed by the two young guides, but we had only once reason to envy their island-privilege. Beyond the Ánavatn lay the Sænaut lakelet, once upon a time haunted by the fabled sea-cow; another pond was passed on the left,

¹ The Dictionary gives "Grip-deildir," rapine, robbery. Deild (dole, deal) and Deildir (dealings) are common in local names, especially to boundary places which have caused lawsuits, e.g., Deildará (boundary-river), Deildar-hvammr, etc.

² Uno Von Troil (p. 108) gives the Icelandic names of four Agarici.

whilst swampy ground extended far to the right. We then ascended a ridge of sand scattered over with basaltic fragments, and saw the Grjótgarðr, or stone-fence. It has a singular appearance, a line of blocks, some of them ten feet square, roughly piled upon one another, and extending half an English mile across the neck of ground. The cubical masses appear like the produce of some quarry. The general look suggests the line of rocks subtending the Grind of the Navir: I can only conjecture that icebergs here meeting and grounding, have deposited their burdens of huge boulder-rocks. The legend is that two Trolls, one a sea-giant and the other a Jökull-giant, agreed to divide their domains; the former started from the north, the latter from the south; they built this wall at the place where they shook hands, and they lived in peace—I was not told whether they married—ever afterwards.

Descending from the Grjótgarðaháls, we halted near the last lake, and collecting a cart-load of willow-roots, which here represent the sage of the Far Western Prairies, we kept out the mist and cold with a roaring fire. The students, too lazy to follow our example, lay upon the ground; yet when riding, these shuddering tenants of the frigid zone muffled their throats in huge comforters, enclosed their hands in worsted gloves, and wore vast waterproofs of oilskin, with other signs of softness. It was the first fire, though not the last, that I saw in Iceland travel.

Resuming our road, we presently began the ascent which had been pointed out to us in the afternoon; crossed a snow-wreath and a snow-patched divide, unusually hard work, and frequently felt the horses sinking fetlock deep in the loose sand. We then descended the misty sides into Heljadalr, and shivered in "Hellsdale." A broad and open way crosses this "Barahút," whose unpleasant title is derived from the tremendous torrents of spring-tide, the deep snows of winter, and the furious dust-storms of the dry season. Leaving the Heljadalsfjall, we entered the cold plain of Geitirssandr; the surface was of water-rolled stones and pebbles, the base of black sand, whilst light-yellow Palagonite appeared in the courses of the dry *fumaras*. In places there were crater-like heaps of dust from ten to a hundred

feet high, the smaller features perfectly conical, and set off by bars and patches of white sand, lime, potash, and other produce of the sea. Evidently the formation is subaqueous, as well as volcanic,¹ and I subsequently found reason to believe that the ancient sea-beach begins west, and upon the parallel, of the Jökulsá bridge, and runs up to the north-western base of Snæfell, the mountain, not the Jökull. The whole tract reminds one of what is said anent the Barony of Bunen: it has neither wood, water, nor earth sufficient to hang, to drown, or to bury a man.

Walking our fagged horses down the yielding slopes, we presently found the ground improve. A stream flowed to our left; a lakelet lay on the right, and thin grass, well covered with sheep, made the scene an oasis. We again put on steam, and shortly after three A.M. we made the Möðrudalr farm. The church was shut, but the buxom housekeeper took compassion upon our weary plight; basins were brought to relieve eyes red with flinty dust, and skins painful with prickly heat; bowls of hot coffee comforted the inner man, and once more we revelled in the luxury of sheeted beds.

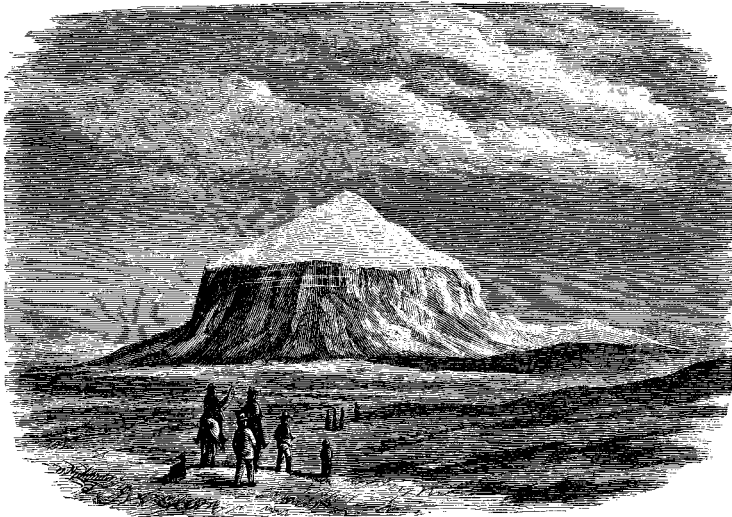
August 5.

The farm of Galiums (etymologically "Madder"), girt by its desert of sand and stone in all directions but the west, where the Western Jökulsá flows at a distance of six indirect miles, is one of the best, if not the best, in Iceland. It is not known in the Landnámabók,² which tells us that this quadrant was the last occupied. The white-headed owner, Sigurður Jónsson, has often been offered his own price for it, but to no purpose. He brings out the map and enlightens us upon the features of the wilderness on the other side of the river. He denies the existence of the mountain "Dýngjufjöll hin nýr Trölladýngjur," immediately south of Bláfjall; and I afterwards found that he was right. Speaking of Baring-Gould's project to attack the Sprengisandur from Möðrudalr, he said that a traveller would be

¹ The volcanic ashes and lapilli show supra-marine eruptions, but the water-rolled stones tell another tale.

² *The Möðruvellir*, the abode of Guðmund the Rich or Powerful, was up the Eyjafjörð, and the map still shows a chapel there.

taking the wrong road ; the usual line is from Bárðardalr on the Skjálfjandifjót to the Thjórsá headwaters : moreover, that this Sahara is never passed till early July. He denied that the snows on Bláfjall give any rule for crossing the cap of the Iceland dome, of which one stage is a *jornada* of twenty-four hours, waterless and grainless. He confirmed my idea that the Ódáða Hraun is bounded east as well as west by the sandy region ; and he shrugged his shoulders when I consulted him about ascending the local sundial, Herðubreið,¹ distant some sixteen miles. The "Broad-shouldered" stood before us in all his



THE BROAD-SHOULDERED.

majesty, cabochon-shaped, or, as the Syrians say, a "Khatím" (seal-ring), girt by perpendicular walls, and projecting a tall point between the double glacier, here of frosted, there of polished silver, as the surface caught the rays of the noontide sun. It is not my fault if the sketch be very unlike Henderson's "Herðubreið, seen from Möðrudal."

The wife was absent, but the buxom housekeeper let us want for nothing except a sight of the Beauty of Möðrudalr, one of

¹ It is thus written by all travellers : Herði-breiðr, however, from Herðar, would be the adjective "broad-shouldered."

the daughters, who is spoken of by every traveller. The comfortable homestead with three gables showed me amongst other things a map of Palestine; but why did Mr James Nisbet write "Treconitus?" The mill was a turbine, so quaint in construction that the water could not be turned off. *En revanche*, the mutton was admirable: the sheep easily fatten in this dry and delicate air, and like their congeners of Somaliland, they put on flesh with the slenderest rations. Not expecting to see it again, we devoured the fresh meat as if devouring were a duty.

Mr Lock, sen., found the heat oppressive, and we waited till after noon before we set out. A few minutes' riding over grass led into loose, deep sand, evidently a subaqueous formation; and here amongst the hillocks grows the Melr, or wild oat, with pale glaucous and striped leaf, long, tough root, large ear, and grain too small for making bread.¹ We saw none during the night; as on the Sprengisandur, the land was too high to hold water, and the cereal prefers hollows where it can enjoy a modicum of damp. It will extend in scatters and patches as far as Mývatn; our horses enjoy it, but the sheep apparently refuse the coarse growth, like the "*pasto fuerte*" of the Argentine Republic. I looked in vain for "birdies" amongst these tufts, probably they find the sands too hot and too cold.

After an hour's slow ride, we turned off the road to the right, where Goðahóll, we were told, shows a temple of Thór. At the southern slope of a hillock known as Selhóll, lay a few loose stones; farther down was the place where the Dóm-hring was held, and northwards a black affluent of the Skarðsá formed the Blót-keldar. All was mean and barbarous in the extreme.

We now entered upon what is called the "best road in Iceland." To the left or west lay Sandfell and Geldíngafell; the crests were sharp as rabbits' teeth, and for a similar reason. After about two hours we crossed the Skarðsá, an ugly, dark torrent, the cesspool of the hills, and, following a ledge, we passed through the defile of the same name, Vegaskarð: the formation was of basalt and Palagonite, the pure and the pudding-

¹ According to the "Antiquaires du Nord" (p. 434, vol. 1850-60), "Slesvig" means Vík, or bay, of the Slè or Sli Arundo Arenaria. But is not this word the Icel. Slý, water cotton (*Byssus lanuginosa*), used as tinder?

stone. This *col* debouched upon a *Vísidalr*, of course nude of withies and willows; the poor and barren slope, cut by black waters, was girt on either side by gloomy hillocks spotted with snow. We halted for a time at the *Sel* which belongs to *Möðrudalr*, and the carpenter, a son of the Rev. *Pètur Jónsson*, kindly offered us a drink.

The "best road" began again, the only defects being rock and deep sand in patches. The ponies, offended by the pace, bit and kicked, shied and bumped their loads. Presently we reached the *Biskupsháls*, where the saintly men of *Skálholt* and *Hólar* once met: two cairns, the *Biskupsvarðas*, conspicuously placed on a height, divide the Eastern from the Northern Quadrant. During the rough descent, of basalt flaky and red as jasper, leading to the valley, we saw the *Jökulsá* called *á fjöllum*, "of the hills," for the all-sufficient reason that it flows in a vale: the map terms this part of the bed *í Axarfirði* because it dis-embogues into the *Axarfjörð*. The milky water flows through a plain of green, thinly veiling the chocolate-coloured face of earth. Beyond it, half hid by gloomy mist, lay the Desert of *Mý-vatn*, and, farther still, rose the slaty-blue cones and ridges with which we were presently to become familiar.

Shortly before ten P.M. we rode up to the *Grímstaðir* establishment belonging to the farmer and ferryman, *Guðmund Árnason*: he was absent at the time, so his surly wife was duly kissed on the mouth by the temporary guide, a peasant from *Möðrudalr*. This place trades, especially in wool and mutton, with *Vopnafjörð*, distant a hard day's ride; and by this line travellers from the eastern ports usually make the *Mý-vatn*. The sheep, mud marked on the rump, are good, and give rich milk, but both articles are inferior to those of the "model farm" which we last sighted. *Grímur*, the old Norwegian founder, chose a capital site; a grassy slope gently rising from the right bank of a stream, and protected by a ground-wave in front from the draughts and moving sands of the river-side. It is marked by the *Hálskerling*, *alias* the *Grímstaða Kerling*, a natural pyramid, conspicuous to those coming from the west: farther off rises the *Haugr* cone, snowy always. To the north of the establishment is the workshop; and here I saw for the first time horns of the reindeer,

which had been shot about Herðubreið: they are common in the neighbouring establishments. The guest-room, entered by a small porch, had a wainscot painted to resemble maple; a gold beading and mahogany furniture; but it boasted neither stove nor fireplace, and, as usual, a whisper rang through the house. Then came the family parlour, with eight windows, each single-paned, facing south: the rest of the building consisted of outliers, byres, the sheep-house, known by the normal central trough, and the usual artless windmill.

August 6.

This morning the owner, a rough, hard-faced and obliging man, in appearance much like our typical "Lowlander," lectured me in the geography of the Útgarð, or outer regions; and an hour before noon we cantered over the three or four miles to the river. This Jökulsá is about 200 yards across, with a sand-bank hard by the left shore. The sides are of crumbling basaltic sand, red and yellow Palagonite, and water-rolled stones; on the right lay a little strip of equisetum, and opposite it were clumps of wild oats, which promised well for a ride to the south. The turbid, slaty-white stream flows at the rate of at least three knots an hour: there is a tradition of its being swum by a horse-stealer, but the cold would deter most men unless riding for dear life. Now low in the bed, it must rise at least five feet, as appears from the driftwood, ground to little bits, which forms the high-water mark. The rule of Andine travellers is to cross such rivers about dawn, when the nightly frost has bound the snows which feed them. The map places its chief sources in the northern border of the Vatnajökull, but the details cannot be relied upon. The length must be at least 120 miles; and as the fall from Grímstaðir to the sea is about 1200 feet, there can be no navigation except in the several reaches, and we can hardly be surprised that it forms the Dettifoss, the small Niagara of little Iceland. The ferry was shaped like a spoon amputated at the handle; it was always half full; and four trips were made necessary by the extent of our belongings. We sat amongst the Eyrarós, the islet roses, representing the oleanders of Syria, and watched the nags swimming across, with their heads as usual

well up-stream—apparently the custom of towing them from the boat is obsolete in Iceland, at least I never saw it.

Shortly after noon we attacked the Mý-vatn Öraefi, the wilderness of Mý-vatn, which is very perfunctorily laid down in the map. It is not wholly barren. The surface is composed of ropy and cavernous lava, with bursten bubbles and extinguished fumaroles, growing thin grass, the usual flowers, dwarf birch, ground-juniper, and two species of willows, the grey always in the neighbourhood of forage; these stripes overlie and alternate with barren volcanic sand and stones, bad retainers of water. The larger arteries of fire-stone, as usual in Iceland, are called Hraun-fljót (run-floods), and the smaller veins Hraun-arða. The sheep of Reykjahlíð and other farms are driven to the green parts during the fine season; it is a *pays brúllé*, but we shall presently see something far worse. Here, again, game was almost wholly wanting. Plovers sat upon the stone-heaps, and the stringy curlew (Spói), which our ancestors loved to “unioynt” (carve), cried over our heads; possibly they knew that their insipidity and toughness would save them from any but steel-tipped teeth. A few ptarmigan ran almost from under our horses' hoofs, ejaculating *Reu! reu! reu!* They are excellent eating, but it is a shame for any but starving men to shoot them at this season, when the grey-brown poults, little balls of fluff, are still unable to fly. The bird may be stupid, but it is an excellent mother, praise which can by no means be accorded to all clever animals; it appears wholly to forget self when aiding in the escape of its progeny. At this season ptarmigan come down from the barren uplands to seek flowers and berries in more genial climes; yet a few days and they will retire with the young family to safer homes.

The remarkable mound on our left, a refuge to “lifters” in olden times, is known as Hrossaborg, the Horse-fort. From afar it appears a mere shell of stratified mud; a nearer approach shows a worn and degraded Herðubreið, with regular couches of Palagonite clay falling steep on all sides but one. The huge semicircle opens to the east, where its drainage sheds to the Hrossaborglindá, the stream of the Horse-fort spring, flowing from the south, and much affected by sheep.

I found no sign of lava, but an abundance of sand around it; if it ever erupted, the discharge must have been like that of Hverfjall, which we shall presently visit. Beyond it the sand is lively as that of Sind: on my return I saw a dozen columns careering at the same time over the plain although rain had fallen during three days. Our caravan was struck by one of these "Hvirfilsbild-ör" (whirlwind bolts), which arose close by; unlike the Shaytan of the Arabian wild, which is adjured with "Iron, O Devil!" it did not even remove our hats. The pillars, which spread out at the top like a stone-pine in Italy, may have been 200 feet high: some travellers, imitating the licence of Abyssinian Bruce, swell the altitude to 2000 yards.

As the gear wore out, so the loads fell with unpleasant persistency, making us plod slowly over good riding ground. In front rose a semicircular ridge, extending from north, *vid* east, to south of the lake, and thickly studded with hills and cones. The map calls it Mý-vatns Sveit, the Mý-vatn district; our student corrupted it to "Sveinn" (puer), opposed to Stúlka, a lass. The latter reminded us of the Joe Miller attributed to the British sailor who understood why women were called "Snorers" (Señoras) in Spain, but could not explain their being "Stokers" in Iceland. This mild joke had power to comfort us whilst all manner of topographical details concerning Jörundr, Hlíðarfell, Búrfell, Hvannfell, Sighvatr, and Bláfjall, were poured into our dull and dusty ears. We halted for a few minutes at the little farm Eystrasel, and then pushed forward to the solfatara. After threading the Námaskarð, where the air was not balsam, we sighted the lake, one of the ugliest features of its pretty kind; and at 8.30 P.M., preceding my companions, I rode in to our destination, Reykjahlíð. The features here only named will be described at full length in the following chapter.

ITINERARY FROM BERUFJÖRÐ TO MÝ-VATN.

BERUFJÖRÐ TO THINGMÚLLI.

Wednesday, July 31, 1872.

Left Berufjörð at 10.45 p.m. Line north-west up left bank of Axarvatn stream, draining to Berufjörð; turf, sand, stones, washed from gullies. Five distinct steps, separated by undulating ground; path rough; cold mist; mountain streams to cross.

1.15 a.m. (2 hours 30 min.).—Halted at foot of fifth step, Hænu-brekka (hen-ledge), the worst.

Walked up Hænu-brekka; snow-slope, path along *névé*; bending to north, rough Öxarheiði, broken plain, tiers of trap, about 700 feet above sea-level. Crossed sundry wreaths and beds of snow.

2.45 a.m.—Summit of Breiðdalsheiði; path marked by three Varðas. Changed nags, 3.45 a.m.

Down valley of Múlaá, in the great Skriðdalr; watershed changes from south to north.

6.30 a.m.—Passed first farm, Stefánstaðir; little Bær on left bank of stream, and west of Skriðavatn; little lake, or rather "broad" of river. On right, falls in the eastern path over the Berufjarðarskarð. Farms every half-hour.

7.45 a.m.—Arnaholtstaðir farm; to-morrow will have cattle fair; some sixty head for sale.

8.10 a.m.—Hallbjarnarstaðir, backed by its hill; general trend, south-east to north-west.

Several farms together. At 9.30 a.m., forded Múlaá, girth-deep; rode up to *Thingmúli* (☉ I.) chapel and farm, under priest of Hallormstaðir. Good property; seventy sheep, and eight cows.

Night's work, 10 hours 45 min., halts included. Average march, 3 to 3½ miles an hour. On map, direct geographical miles, 17. Direction, north-west, bending to north.

Morning fine and sunny. Mist at 8 to 9 a.m.; heavy at 3

P.M. Night cold, raw, and foggy; about midnight, mist from north.

Paid farmer, Davíð Sigurðarson, \$5; his wife wanted \$3 more. Little trodden paths more expensive. People have no standard of value.

THINGMÚLI TO VALTHÍÓFSTAÐIR.

Friday, August 2.

Set out, 12.30 P.M. Forded river, rode down Grímsá valley; often crossed stream; best road near the bank. After 45 minutes, left Grímsá, and struck the Melar or barrens at foot of divide. To left Geirólfstaðir, small farm of civil people, where I slept August 19. Up the long green slope of Hallormstaðarháls; less abrupt than western slope. Reached summit 3 P.M. (aneroid, 2932), and began rough and abrupt descent. At 3.15 crossed Hafursá (buck-goat river), a dwarf ravine. Trap in steps, and red-ochre fields to left. Lagarfjót Lake below; both banks easy slopes; green ledges and swamps, crossed by causeways. Bridle-path well kept, because it is road to Eskifjörð, the port. Farms everywhere; see seven on western side. Passed through the "Skóg," forest of Hallormstaðir. General direction, north-west; direct distance, 4 geographical miles.

4.10 P.M.—(After 3 hours 40 min. slow = 2 fast) Reached Hallormstaðir. Left it at 6 P.M. Up right bank of Lagarfjót; succession of torrents, gullies, and bad stony places, which can be rounded. Rode under the Rana-Skóg (wood of the hog-shaped hill). Big sand-bar of Gilsa forms a tongue of boulders and bad torrent if the ford is not hit. Path double, summer along lake and in water; winter, higher up. Deep holes between basaltic blocks; horse sinks breast-high.

8.30 P.M.—At Hrafnkelstaðir (proper name of man), opposite Hengifoss cataract, on other side of lake.

9 P.M.—Opposite fine farm, Bessastaðir.

9.30 P.M.—Ferry below junction of two forks of Lagarfjót; swift, cold stream; breadth, 200 yards; current, 3 knots; horses swam in 2 min. 30 sec. On return, forded it higher up, when

split into three large and three small streams. Another ford, wither-deep, farther down. Paid ferry, \$2.

© II. 10.45 P.M.—After 20 minutes' gallop over green plain, reached Valthiófstaðir church and parsonage. Second march (general direction, south-south-west), 3 hours 30 min. = 10 indirect geographical miles. Total day's work, 7 hours 10 min. = 14 miles.

Aneroid, 29.94; thermometer, 76° (second observation, 29.96; thermometer, 83° in sun).

Morning gloriously clear. At 10 A.M., cloudy and sunny. 2 P.M., sun hot, and people complained. Cirri and cumuli over the Vatnajökull. Evening clear and cool.

VALTHÍÓFSTAÐIR TO THORSKAGERÐI.

Saturday, August 3.

Started 2.45 P.M.—Took upper road to avoid túns; lower better.

3.10 P.M.—Ruined monastery, Skriðuklaustr. Delayed 15 minutes.

Crossed ugly boulder-torrent, which wetted the beds. Reached Bessastaðir farm, 3.50 P.M.

At 4.30 P.M., true start over the Fljótsdalsheiði. Map shows nearly straight line from east to west. Not travelled over now. We struck north-west-west; stiff rise for 45 minutes. Rotten ground, and cold air.

Reached first step at 5.10 P.M. Aneroid, 28.73; thermometer, 76°, on summit.

First view of Vatnajökull from Vegup (Vègúp? or Vegupp?), 6.20 P.M.

Aneroid, 27.92.

On the southern road (Aðalbólsvegr) the highest point of the divide was shown by aneroid 27.80.

7.30 P.M.—Reached midway height, water stagnates; presently the versant changed, and the Miðvegr (half-way) torrent flowed west to the great Jökulsá. Despite Varðas, lost way half-a-dozen times. Ground more and more rotten.

10.30 P.M.—Crossed boulder river, Eyvindará, and turned from north-west to south-west. Began descent.

11 P.M.—The western is the shortest, the Eastern Jökulsá being some 900 feet above the Lagarfjót. Crossed many streams divided by ridges.

N.B.—The Holkná (water of the rough stony field) is misplaced in the map. It is south of Eyriksstaðir, on opposite bank. Rode along river banks; air much warmer.

© III. 12.40 P.M.—Reached Thorskagerði. Ferryman's house newly built.

Total on road, 9 hours 55 min.; very slow work; about 7 to 8 hours' real work. Distance measured by map, 22 to 23 geographical miles. General direction, north-west and west-south-west.

In morning, sun and strong north wind. Then clouds from south. At 5 P.M. saw a shower in the Lagarfjót. 7 P.M., drops of rain.

THORSKAGERÐI TO MÖÐRUDALR.

Sunday, August 4.

Early in the forenoon, crossed the (E.) Jökulsá in the cage. The horses were driven to the ford, 200 yards below. Only four of sixteen swam over at first trial, in 1 hour 30 min. The rest were driven farther down, and seven passed over in 1 hour 30 min. to 2 hours 30 min. The last five were towed over with a rope. Occupied 4 hours. Ended at 12.45.

Loaded at Eyriksstaðir; left bank of, and 100 feet above, stream. Aneroid at 2 P.M., 28.98; thermometer (in shade), 60°.

Set out at 5 P.M. Up the high left bank of stream, and at once lost the road. Line not traced in map; it lies between the Möðrudalsvegur, north, and the Jökuldalsheiði to the south. Began to cross the great divide, a tableland, not a prism, between the two Jökulsás.

At 6 P.M., aneroid, 27.90; thermometer, 74°.

Passed north and along foot of Eyriks mountain. Entered a region of lakes or tarns; whole surface has been under water, and probably is so still in spring. Buðará reservoir and stream to right. Divided by dust plains, chocolate and bright-yellow; good galloping-ground.

On right, second lake, Gripdeildir, at foot of Sval-barð Hill.

8.15 P.M.—Vetur-hús farm and lakelet; $3\frac{1}{2}$ Danish (14 geographical) miles from Möðrudalr. On return, rode in 4 hours 45 min.

End of first stage, which occupied 3 hours 15 min. = 4 geographical miles.

Resumed road, 8.30 P.M. On left big lake, Ánavatn (Áni proper name), not in map.

9.20 P.M.—Sænautasel (shieling of the sea-cow), a little bye, belonging to the large Rangalon (Ranga, proper name, and -lón, sea-loch, inlet, still-water) farm to north. There is also a Sænautavatn and a Sænautafjall to west. Another lakelet to left. Up rise, a regular divide; swampy region to right. Examined the "Halse of the stone wall" (Grjótgarðaháls). Lakes and swamps again; peats cut here.

10.45 P.M.—Halted near edge of last swamp or lake. This second stage occupied 2 hours 15 min. = 4 geographical miles.

Set out, 11.15 P.M. Bad descent to Rangaá (river), head-water of Hofsa, going to Vopnafjörð. Map does not prolong it so far south. Exchanged swamp for sand and snow-fonds.

Into Heljardalsfjall. Broad smooth plain of Geitirssandr.

Aneroid, 28·08.

Along hill-side to first steep descent; pyramid hill to left. Second deep descent, the Skarð leading to plain of Möðrudalr.

⊙ IV. Arrived at Möðrudalr, 3.10 A.M. Third stage, 4 hours = 12 miles. Total of day, 9 hours 30 min.; the distance, according to the people, being 25 English miles. We made it 20 geographical miles.

Aneroid, 28·50; thermometer, 70° (in room).

Grey morning; sunny noon; high north wind; then heavy clouds; but no rain till after we were lodged.

MÖÐRUDALR TO GRÍMSTAÐIR.

August 5.

General direction, almost due north.

In morning took sights.

Herðubreið, 263° 30' to 266° mag. (local variation - 40°), or 223° 30' to 226° true.

Kverkfjöll, 248° 30' mag.

Fagradalsfjall, 244° to 246° mag.

\$6 to owner, and \$2 to student guide.

Set out, 2.45 P.M. Made for Geldíngafell (11° mag.), in line of tall cliffs. Sandfell, rounded cone, on left. To right (eastward) was Vegahnúkr, 45° mag., and the rocks and tumuli of Nýpi, or Núpur, 64° mag. Not in map. Soon off grass into deep sand.

At 3.45 turned back, and lost twenty minutes visiting Goðahóll.

4.45 P.M.—Crossed Skarðsá, ugly black torrent, influent of Western Jökulsá. Along a *corniche*, the Vegaskarð, a pass through the hills. Dun-coloured Palagonite clay upon the stones; large blocks of conglomerate and yellow basaltic rock below.

5.15 P.M.—The Miðvegr (mid-way).

Sharp riding to Víðidalr; ugly barren slope, black waters, foul stream feeding Jökulsá. Red hill on left.

6.20 P.M.—Halted at farm; two white gables; many byres. Halted.

First stage, slow work, 3 hours = 10 geographical miles.

Set out again, 7.15 P.M. On right, Grímstaða Kerling, natural pyramid of rock, used by trigonometrical survey.

8.45 P.M.—Biskupsháls.

Skirted Ytri Núpur, northern hill, bounded south-west by Grímstaða Núpur.

9.15 P.M.—Good gallop over grass; rolling ground up and down.

© V. Crossed rivulet south of farm, and reached Grímstaðir farm, 9.45 P.M.

Second stage, fast; 2 hours 30 min. = 12 miles. Total, 5 hours 30 min., half-slow, half-fast = 22 direct geographical miles.

Paid guide, \$1; he wanted \$2. Will gallop back in two hours.

Morning hot and dry; sun oppressive; in afternoon, cool and cloudy air. About 8 P.M., cold east wind; hands numbed.

In evening, dense cloud, like ice-fog, rose from the horizon and covered the sun.

Aneroid, 28·88; thermometer, 52°. Next morning, aneroid, 28·72; thermometer, 59°.

GRÍMSTAÐIR TO MÝ-VATN.

August 6.

General direction, nearly due west. Took sights, and farmer gave names :

1. Jörundr, bare cone of Palagonite, which we shall leave to right, or north, 334° mag.

2. Búrfell, tall blue hill, south of our road, 300° mag.

3. Hvannfell, at north end of Bláfell, 293° mag.

4. Fremrinámar, at south-east end of Bláfell (from afar very like Krísuvík), 276° 30' mag.

5. Herðubreiðarfell (not to be confounded with true Herðubreið), called by people, Dýngjufjöll; long line of low heaps and craters, partly concealing snows of Herðubreið.

Paid \$4 for pasture, \$2 for ferry (Henderson paid \$3), and \$2 for this day's guide, who has two horses, and returns in the evening.

11 A.M.—Left farm; pricked over plain, sand-outs, and thin scrub.

12.15 P.M.—Jökulsá River; 3 miles. Aneroid, 28·90; thermometer, 63°.

Ferry made four trips. Horses swam to island in 1 min. 15 sec.; spent two hours at river.

Remounted, 2.15 P.M. Passed Hrossaborg block, and began the Mý-vatn Örafi (Desert of Mý-vatn).

Rode slowly; loads falling. Line, lava runs (five large) and sand; many little craters studding the plain. In front, detached hills and cones, arc of circle with hollow towards lake. The Mý-vatns Sveit (district).

6.30 P.M.—Little farm, Eystrasel (in map, Mý-vatnssel), 1 hour 30 min. from Reykjahlíð; swamp to east, and stream to west. Line marked by tall Varðas, alternate layers of turf and sticks.

Up and down the Námaskarð (*col* of the wells), dividing Dalfjall, the northern, from Námafjall, the southern range. Pass through the heart of the solfatara.

At west end of pass sighted the Mý-vatn.

© VI. 8.30 P.M.—Arrived at Reykjaflöð, our destination.

Second stage from river, 6 hours 15 min. = 17 to 18 direct geographical miles, riding fast and slow. Total of day's work, 7 hours 30 min. = 20 miles.

Dull, grey morning; threatens glare and warmth. Wind from north-west; showers on hills. Dust clouds on plain, showing excess of electricity; signs of heat, not of rain. Sunny afternoon; gloomy evening.

CHAPTER XIV.

THREE DAYS AT THE SOLFATARA OF MÝ-VATN.

I CANNOT accuse myself of failing to do traveller's duty at Mývatn: although the weather became raw and rainy, not an hour was wasted. The first step was to climb the nearest height and form a general notion of Midge-water, which must not be derived *à micturitione Diaboli*. It is said to be forty miles in circumference—you might as well measure round a spider—and the "gorgeous green isles" look like lumps of mud in a horsepond; their only use is to grow angelica; but we saw them under a dull grey sky, like an inverted pewter-pot. The mean of many observations gave for the aneroid 29.12, and the thermometer 54°: if this be correct, Midge Lake must be nearer 900 than 1500 feet above sea-level. Travellers tell you that the fair dimensions were curtailed by the great eruption of Leirhnúkr and Krafla (1724-30); that the lava is not yet thoroughly cooled; and that consequently the surface is never wholly frozen. But the Krafla, as we shall see, can never have flowed here, and there are old craters and hornitos, volcanoes in miniature, all about the edge: the whole becomes a solid sheet of ice, except where sulphur and other minerals send forth springs more or less tepid; moreover we found a depth of only 27 feet. The bottom is black and muddy; the water along shore is shallow and weedy, sedgy and spummy, whitening the coast and the island edges; it is glorious breeding-ground for the blood-drawing "chief inhabitants of the district." Gnat terrors are emphatically noticed, and one traveller assures us that the people wear a visored cassinet of black cloth to guard head and neck. They are compared with those *feræ naturæ*, the midges of Maine; "No-see-ums," the "Indians" call them. We brought

veils, and hardly saw a "Mý"—but then, the cold weather was against the "bodies of Behemoths and the stings of dragons." Nor did we find Mý-vatn "a place where birds and fishes abound, and where many of the wonders of Iceland are concentrated." Every student of the avi-fauna who has sighted the pool, from the days of Proctor and Krüper to those of Shepherd¹ and Baring-Gould, makes it a very happy hunting-ground: all give lists which bring water to the sportsman's mouth. Ten short years, however, have made the latest obsolete. We did not meet with a single Iceland falcon, once so common; the birds, with the exception of gulls, a host of sandpipers, and plucky little terns, whose sharp beaks threatened our heads and eyes, were rare in the extreme; and we found defunct chicks at every few hundred yards. Although we boated and shot over the ugly puddle, our only bag consisted of a mallard, a widgeon, a few grebes and pipers, and the Sefönd or horned grebe (*Podiceps cornutus* or *auritus*?), tufted on both sides of the head. The waters supplied trout and char; there is no salmon, as the fish cannot leap the falls twenty-five miles from the lake. Dead shells lay everywhere upon the spumy margin, and the corpse of a duck was found studded with mollusks. The soil, disintegrated volcanic rock, is of the richest; some thirty farms and farmlets are scattered about the Hlíðar or ledges between the several lava-gushes; and the pastures support some 3000 sheep.

The Mý-vatn is somewhat in the delta shape, with the apex fronting west (↖), and with the base extending seven to eight miles: its drain, the Laxá frá Mý-vatn, escaping about the point and feeding the Skálfandi Fjörð, must be a mere torrent. North of it is the lumpy, uninteresting mound, Vindbeljarfjall, "wind-bellows hill;" the bag to the south, and the nozzle to the north-east; an African pair of bellows, *i.e.*, one "bellow," if such word there be. It is a trigonometrical station like the Hlíðarfjall, a bare cone north-east of Reykjahlíð. The points and promontories are most remarkable to the south, but these and other features will be better observed on the road to the Fremrinámar.

¹ This traveller mentions eider-ducks at Mý-vatn. We saw none, and the farmers declare that the birds do not leave the sea-shore.

My general survey ending about noon, I set out for Leirhnúkr and Krafla under the guidance of Hr Pétur Jónsson, the farmer of Reykjahlíð. The tall, burly old man, made taller by contrast with his little Jack nag, had fenced himself against the grey mist and skurrying sea-wind by the usual huge comforter meeting the billy-cock hat behind; by "conservators" of green glass, and by a mighty paletot of the thickest Wadmal. We followed yesterday's road, and now I carefully observed the lay of the land. Beyond the green and grassy point, Höfði (the headland), we came upon sundry veins of lava about a century and a half old, and much like slag: where Palagonite-conglomerate forms the surface, begin the Sandfell and the Hlíðarnámar (Lithe-wells), the latter wrongly confounded in the map with the Námar to the east of the Námafjall range. A couple of boards some six inches long were the only signs of work. The dirty-yellow mountain, striped from top to toe, as if washed by rain, with primrose, brick-red, dark blue, pea-green, light blue, and chalky-white, now stood smoking before us; and beginning the ascent, we passed the two boulders of pure sulphur, from which every traveller has carried off a bittock. Threading the Námaskarð by a decent path, we wound first to south and then to north, till we sighted the mud caldrons on the eastern slope. In Henderson's day they numbered twelve; in 1872 apparently they were on their "last legs:" two lay to the north, four to the south; they were shaped like Sitz baths, and they ejected, with a mild puff which could not be called a roar, spirts of repulsive slime, blue-black, like mud stained by sulphate of iron. These "Makkalubers" contrasted strongly with the patches of lively citron and sprightly pink all about the slopes. One traveller finds it a "most appalling scene"—he must be easily "appalled."

Debouching upon the eastern plain, we rode along the foot of the Dalfjall (dale-hill), which continues the Sulphur Range to the north, hugging the sides to avoid the Steiná, another bed of newish lava, an impossible mass of cinder, brown, black, and red, on our right. The path was well grown, but the "lady of the woods" (birch) is a dwarf in these parts, and looked tame beside the patches of *Dryas*. We flushed sundry ptarmigan,

which were certainly not "absurdly tame." After an hour and a half of "Trossacks," which on return was covered in forty-five minutes, we halted at Skarösel, a little Setr or summer shieling, a mere "but and ben" without tún, a heap of peat and stones grubbed out into rooms. The primitive churn found in every dairy shows that the ewes' cream is here made into cheese, whilst the skim-milk forms the national Skýr. Of course the animals are poor and thin all the year round—the effect of continued "drain upon the constitution."

Beyond the Skarösel, we began to ascend and round sundry diseased and mangy hills, walking up the higher pitches, and riding over peat mounds, based upon oldish lava. After a total of two hours, we dismounted at the foot of Leirhnúkr (mud-knoll), where the horses' hoofs flung up mere sulphur, and where warm, damp air escaped from every hole. The view from the summit convinced me that the emplacement has been poorly described by travellers. It is the northern head of a thin spine, a sharp prism about a mile broad, lying almost upon a meridian (215° mag.), and continuing the heights of Thrhymingr, Dalfjall, and Námafjall. At some distance to the north-west rises the snowy buttress, Gæsadalsfjöll (geese-dale hills), almost concealing the Kinnarfjall (cheek or jaw mountain). Nearer lies a chain of cones and craters, with sundry outliers; they seem to have discharged a torrent nine miles long by three of maximum breadth, which inundated the north-eastern corner of the Mývatn with veins and arteries of fire; and the scatter of hornitos and fumaroles to the north has also aided in the work of destruction, or rather reconstruction. The map shows only a patch of lava reaching from Leirhnúkr to the Hlíðarfjall cone south-west.

The Leirhnúkr proper is composed of two hillocks trending north and south; the southern is larger than the northern, and the whole, a long oval extending some 2000 paces, is one vast outcrop. The lowland to the east is far broader than the western, a mere slip; here frequent splotches of sulphur and anaphysemata, or gas vents, lead to the Krafla springs. The aneroid showed the summit of the Mud-Knoll to be about 2000 feet above sea-level. Henderson (i, p. 167) calls it a volcano, and connects it with his

other volcano, Krafla, by a non-existing ridge; but with him, *omne ignotum*, etc.—Hrossaborg and even Herðubreið are volcanoes. When he compares the scenery with that of the Dead Sea, one of the fairest of salt-water lakes, we must remember that his idea of “Asphaltites” was borrowed from that lively modern writer, Strabo.

We then remounted and rode over the dwarf Phlegreæan fields to the Námar of Krafla,¹ the *immense soufrière* of M. Robert. The lowland is here studded with many inverted cones of cold, blue water; the principal feature being Helvíti Starra (Greater Hell). It is an irregular circle, with little projections at the longest diameter, north-west to south-east, a large, tawny funnel of burnt clay and bolus, the degradation of trachyte and Palagonite, about 800 yards across. This is the famous “mud-caldron of Krabla,” a “natural phenomenon hardly inferior to the Geysers;” but Henderson’s Hell of 1815 was greatly changed in 1872; and we shall see far larger features at the Hverfjall and the Námarkoll. Instead of that “terrific scene,” the “jetting pool” of wild illustrations, a lakelet smiling in the bright sun, which burst the clouds about two P.M., a placid expanse of green-blue water, cold, and said to be deep, occupied the bottom of the hole, and the only movement was a shudder as the wind passed over it. I could not help thinking of “La belle vision d’Élie, ou un Dieu passe sous la figure d’un vent léger.” Despite the “abrupt and precipitous descent, 200 feet deep,” there is no difficulty in descending the sides of “Olla Vulcani,” now the mere dregs of a volcano.

After inspecting this poor, “abolished Hell,” we rode round it northwards, crossing sundry snow-wreaths, which on the Libanus would be called Talláját, and left our cards upon “Little Hell.” The latter is composed of two smaller lakes on a higher plane, one bearing east-south-east and the other south-east. Between the pair lie some half-dozen slimy-bordered “leir-hverar,”² mud-boilers of

¹ Pronounce but do not indite “Krabla”—there is no such written word as Krabla. The Dictionary gives “að krafla,” to paw or “scrabble;” it also means to scratch, and perhaps the obtuse agricultural mind has connected this pastime with the evil for which sulphur is a panacea.

² Some travellers call them Makkaluber, and Icelanders write “Makalupe,” a

fetid smell: the ejections bubbled and spluttered, falling into their own basins, and the fumes did not prevent the growth of Fífa and bright lichens.

After seeing what you may see in almost any solfatara, we rode to the north-east, and in twenty minutes we ascended the turfy and muddy northern cone of Krafla mountain; a mass of Palagonite, pierced, to judge from the surface scatters, with white trachyte. An isolated cone appears in the map; I found that the northerly part sweeps round to the north-north-east, connecting with the Hágaung (high-goer), a long, meridional but-tress of similar formation; whilst the south-eastern prolongation anastomoses with the black mass called the Hraftinnuhryggr or "Obsidian mountain." I utterly failed to discover any sign of crater: we are told that Krafla was torn in half during the last century, and Henderson apparently makes Great Helvíti the remains of the bowl. From the apex, where the aneroid showed 2730, we could trace the course of the Laxá; and a gleam in the north was pronounced by the farmer to be the Axarfjörð, a corner of the house where dwells *Le Père Arctique*. Upon the black summit, where we

"Toil and sweat, and yet be freezing cold,"

Dryas was still in bloom, and violets and buttercups were scattered over the lower slopes. I looked in vain for specimens of the plumbago or black lead, reported to be found on Krafla. There is no objection to its presence in this katakekaumene; "graphitical carbon" was found by M. Alibert in the volcanic formations of Siberian Meninski, so it is not confined, as at Borrowdale, to the "primitives."

As we were descending the hill, my guide inspected a flock of his own sheep, and I vainly attempted to lay in a store of fresh mutton. These people would probably sell, if they could get \$8 to \$9 per head, some 2000 of their 3000 animals, and greed of gain would leave them almost destitute. Yet here, as at other farms, it is impossible, even with a week's work and offering treble price, to buy a single head; excuses are never wanting,

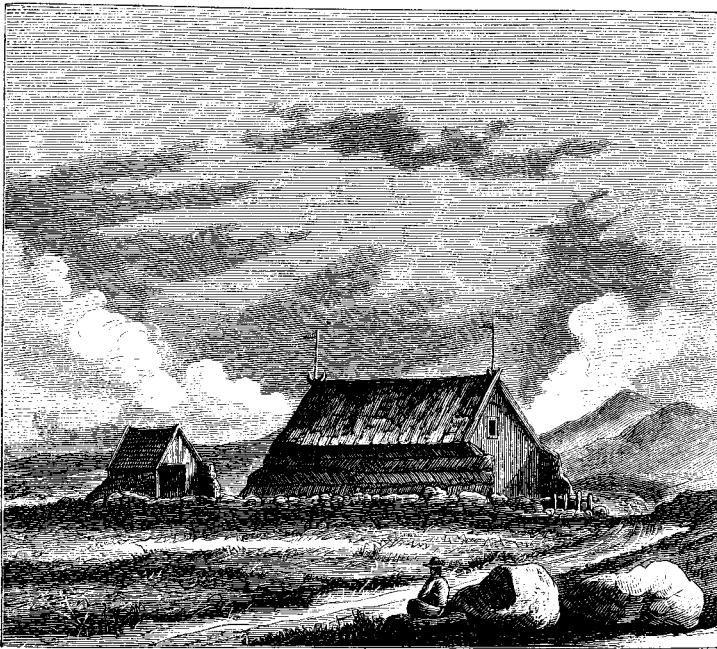
corruption of Macaluba, famed for air volcanoes, near Girgenti, itself a corruption of the Arabic "Maklúb."

"There is no one to send! All the ewes have lambs! The lambs are not fit for food!" The latter probably means that the lamb will in time become a sheep; the wild negro of the African interior, equally logical, expects a chicken to bring the price of a hen. In Tenerife I should have shot a wether, and have left the price upon its skin.

A shallow valley led to the Hraftinnuhryggr, where previous accounts would induce you to expect a "mountain of broken wine-bottles," all "shining with their jetty colouring." The thin strew upon the streamlet sides and about the feet was of small fragments, which became larger as I ascended. Mostly it was black and regular, that is, not banded, and the outer coating was a reddish paste: in places it forms a conglomerate with sandstone, and on the eastern summit, where trachyte also crops out, it seems to be *in situ*. M. Cordier (p. 278) translates the word "*pierre de Corbeau*," thus robbing the raven: he proposes "*gallinace*" (*i.e.*, turkey-buzzard), for the glassy material of pyroxenic base, reserving "obsidian" for the felspathic. From this place, I believe, came the specimens lately studied by Dr Kennott of Zurich: one of them exhibited under the microscope, "numerous small, brown, hollow bodies, of globular and cylindrical shape, regularly arranged in definite series." Obsidian has been found north-east of Hekla, passing into pumice, and old Icelandic travellers seem to confound it with pitchstone, asphalt, or bitumen of Judea, a vegetable produce. Many of the obsidians are remarkably acid. "Iceland agate" (why?) must be handled with care, as Metcalfe found to the cost of his bridle-hand. Iceland ignores the pure "stone age" of Tenerife and Easter Island; and though strangers pick up specimens, the "volcanic glass" here has never been worked, as by the natives of the Lipari group. I observed that Ravenflint ridge, which prolongs the Krafla, is itself prolonged by the Sandabotnafjöll, and by the Jörundr, which the map makes an isolated cone. The classical name of the latter suggests memories of the old anchorite of Gardar.

The day ended pleasantly. After finding what there was and what there was not to be seen, I galloped back in a fine sun and warm evening, and after seven hours thirty minutes of total

work, found my companions busy in pitching the tent, despite the cold threats of night. They complained of the stranger's room, although it rejoiced in such luxuries as two windows, a bed and curtains, looking-glass, commode, map, thermometer, and a photograph of Jón Sigurðsson. The house, with five gables, fronts west-south-west to "Wind-bellows hill;" here the south wind is fair and warm, the norther brings rain, the easter is wet, and the wester dry and tepid. As in England, the south-



REYKJAHLID CHURCH—(miraculously preserved).

wester is the most prevalent, and flowers thrive best where best sheltered from it. The house has the usual appurtenances, workshop and carpenter's bench; smithy and furnace; byre and sheep-fold. The shabby little windmill, with three ragged sails, goes of itself, like Miss K.'s leg; there is an adjacent Laug, of course never used, and the nearness of the lake renders a Lavapés (rivulet) unnecessary. Plough, harrows, watering-pot, and hay-cart are also evidences of civilisation, but the kail-yard is nude

of potatoes — probably they require too much hard labour. Shabbier than the windmill, the church, bearing date 1825, lacks cross, and wants tarring; it has no windows to speak of, and the turf walls are built after an ancient fashion, now rare, the herring-bone of Roman brickwork. The cemetery around it is indecently neglected, and bones, which should be buried, strew the ground. Baring-Gould (1863) gives an account of its chasubles and other ecclesiastical frippery, which may still be there, unless sold to some traveller. It is a lineal descendant of that "church which in an almost miraculous manner escaped the general conflagration" of 1724-30. Henderson adds the question, "Who knows but the effectual fervent prayer of some pious individual, or some designs of mercy, may have been the cause fixed in the eternal purpose of Jehovah for the preservation of this edifice?" I may simply remark that lava does not flow up hill; the stream split into two at the base of the mound, without "being inspired with reverence for the consecrated ground," and united in the hollow farther down. Yet travellers of that age derided the Neapolitan who placed his Madonna in front of the flowing lava; and when she taught him the lesson of Knútr (Canute) the Dane,¹ tossed her into the fire with a *'naccia l'anima tua*, etc., etc., etc. Superstition differs not in kind, but only in degree.

The reason for the tent-pitching soon appeared. The burly farmer has a lot of lubberly sons, and two surly daughters; "Cross-patch" and "Crumpled-horn" being attended by half-a-dozen suitors and women friends, *bouches inutiles* all. If we look into the kitchen, these Lucretias make a general bolt. There is extra difficulty in getting hot-water, although Nature, as "Reykjahlíð" shows, has laid it on hard by; and even the cold element is brought to us in tumblers. The coffee is copiously flooded; this is feminine economy, which looks forward to the same pay for the bad as for the good; and cups, which suggest "take a 'poon, pig," poorly supply the place of the pot. One of the sons speaks a little English: we tried him upon the lake, and

¹ The docks of Southampton, built where he sat, have somewhat stultified the simple wisdom of the old man.

after two hours' rowing he was utterly exhausted. Besides, there are lots of loafers, jolter-headed, crop-eared youngsters,

“ With no baird to the face
Nor a snap to the eyes,”

who are mighty at doing nothing: they peep into, and attempt to enter, the tent; when driven off they lounge away to the smithy, or to the carpenter's bench, and satisfied with this amount of exercise, they lounge back into the house, where we hear them chattering and wrangling, cursing and swearing, like a nest of young parrots. They remind me of the Maori proverb, “Your people are such lazy rogues, that if every dirt-heap were a lizard, no one would take the trouble to touch its tail and make it run away.” They cannot even serve themselves: the harder work is done by a pauper couple, a blind man and his wife, who sleep in the hay-loft. The only sign of activity is shown by the carpenter, Arngrímr, a surly fellow, wearing a fur cap, like a man from the Principalities, and with mustachioes meeting his whiskers, like those of the Spanish Torero. “He is Nature's artist,” says the student, meaning that he has taught himself to paint, and *hélas!* to play flute and fiddle. So the evening ends with ditties, dolefully sung, and the Icelandic national hymn, the latter suggesting Rule (or rather be Ruled) Britannia. We are curious to know how all these sturdy idlers live. They fish; they eat rye-bread and Skýr; they rob the nests, and at times they kill a few birds: the best thing that could happen to them would be shipment to Milwaukee, where they would learn industry under a Yankee taskmaster. I have drawn this unpleasant interior with Dutch minuteness: it is the worst known to me in Iceland.

The old farmer, Pétur Jónsson, lost no time in deserving the character which he has gained from a generation of travellers; his excuse is that he must plunder the passing stranger in order to fill the enormous gapes which characterise his happy home. Yet he makes money as a blacksmith; he owns a hundred sheep, and he is proprietor of a good farm. In his old billycock, his frock-coat and short waistcoat, he looks from head to foot the lower order of Jew; we almost expect to hear “ole clo'” start

spontaneously from his mouth. He began by asking \$3, to be paid down, for the Krafla trip, and \$4, the hire of four labouring men, for trinkgeld to the Fremrinámar; and the manner was more offensive than the matter of the demand. His parting bill was a fine specimen of its kind. It is only fair to state that he bears a very bad name throughout the island.

Next day the north wind still blew; the heavy downpour at five A.M. became a drizzle two hours later; and at ten A.M. there was a blending of sunshine and mistcloud, which showed that we had nought to fear save a shower or two of rain and sleet. Mr Lock (*Jils*) and I determined upon a ride to the Fremrinámar; "a field of sulphur and boiling mud," says Baring-Gould, "not visited by travellers, as it is difficult of access, and inferior in interest to the Námar-fjall springs." After breakfast, we set out, each provided with two nags, which we drove over the lava-field to the Vogar farm, about half-an-hour distant on the other side of the grassy point, Höfði. This "oasis in the lava"—a description which applies to all the farms of Eastern Mývatn—was the parsonage in Ólafsson's day (1772); we expected to find the Jón Jónsson mentioned by Shepherd, who had learned English in Scotland—he had, however, joined *il numero dei pivi*. As sometimes happens to the over-clever, we notably "did" ourselves; the owner, Hjálmar Helgason, a very civil man over a tass of brandy, was, we afterwards found out, a son-in-law of old Pétur; he also, doubtless informed of the *vice*, demanded \$4, which we had to pay; he kept us waiting a whole hour whilst the horses were being driven in, and he sent with us a raw laddie, whose only anxiety was to finish the job.

Shortly after noon we rode forward, crossing the unimportant Gjá, which the map stretches in a zigzag south of Reykjahlíð; we passed the "horrid lava-track" of Ólafsson, a mild mixture of clinker and sand, and in twenty minutes we reached Hverfjall, lying to the south-east. From afar the huge black decapitated cone, symmetrically shaped and quaquaversally streaked, has a sinister and menacing look. It is not mentioned by Henderson, whose account of the Mývatn is very perfunctory. According to Baring-Gould, it is "built up of shale and dust, and has never erupted lava:" as the name shows, it contained a Hver, or mud-

spring. We mounted it in ten minutes, and found the big bowl to consist of volcanic cinder and ashes based upon Palagonite and mud: the shape was somewhat like that of the Hauranic "Gharáreh" which supplied the lava of the Lejá. The aneroid (28.70; thermometer, 83°) showed some 800 feet above Reykja-hlíð; and the vantage-ground gave an excellent view of the lake, with its low black holms and long green islets, of which the longest and the greenest is Miklaey (mickle isle). This *Monte nuovo* was erupted in 1748-52; and a plaited black mound in the easily-reached centre shows where the mud was formerly ejected. Almost due south of it lies a precisely similar feature, the Villíngafjall. These formations are technically called Sand-gýgr, "sand craters," opposed to Eld-gýgr, the "fire abyss;" and their outbreaks form the "sand summers" and the "sand winters" of arenaceous Iceland and its neighbourhood. I look upon the Hverfjall as the typical pseudo-volcanic formation of the island.

The real start was at one P.M., when, having rounded the western wall of the Hverfjall, we passed east of a broken line of craters based upon thin-growing grass. The whole can be galloped over, but 'ware holes! Nor did I find the skirt of a lava-flood always an "unsurmountable barrier to Iceland ponies," although in new places it may be. On the east was Búrfell ("byre" hill), the name is frequently given to steep, circular, and flat-topped mounds; south-west of it lay the Hvannfell, long and box-shaped. Farther to the south-west, and nearly due south of the lake, rose Sellandarfjall, apparently based on flat and sandy ground; patches of snow streaked the hogsback, which distinguished itself from the horizontal lines of its neighbours. Far ahead towered the steely heights of Bláfjall, which from the east had appeared successively a cone and a bluff: it still showed the snows which, according to travellers, denote that the Sprengisandur is impassable; the last night had added to them, but the lower coating soon melted in the fiery sun-bursts. The line of path was fresh lava overlying Palagonite; and in the hollows dwarf pillars of black clay were drawn up from the snow by solar heat: their regular and polygonal forms again suggested doubts about the igneous origin of basalt, which may simply

result from shrinking and pressure. This columnar disposal of dried clay, and even of starch desiccated in cup or basin, was noticed by Uno Von Troil as far back as 1770.

After an hour's sharp ride, during which my little mare often rested on her nose, we struck a cindery divide, a scene of desolation with sandy nullahs, great gashes, down whose sharp slopes we were accompanied bodily by a fair proportion of the side: of course the ascents were made on foot. The material is all volcanic and Palagonitic; here trap and trachyte *in situ* apparently do not exist: as we made for a *Brèche de Roland*, east of Bláfjall, we passed a sloping wall of white clay; and at half-past three we halted and changed nags at the Afrétr (*compascuum*), to which the neighbouring farmers drive their sheep in July and August. The lad called it the Laufflesjar, leafy green spots in the barren waste. We saw little of the willow which he had led us to expect; but the dark sand abounded in flowers and gramens; the former represented by the white bloom of the milfoil (*Achillea millefolium*), which the people term Vallhumall,¹ or "Welsh," that is, "foreign," hop; and the latter by the Korn-Súra (*Polygonum viviparum*), viviparous Alpine buckwheat. A snow-patch at the western end of the plainlet gave us drink; and thus water, forage, and fuel were all to be found within a few hundred yards. The guide said it was half-way, whereas it is nearly two-thirds, and we rode back to it from Bláfjall, which bears 100° (mag.), in an hour.

Resuming our road we rounded the sides of the hillocks, and presently we attacked a Hraun unmarked by Varðas. Discharged by a multitude of little vents, the upper and the lower portions are the most degraded; the middle flood looks quite new, and ropy like twisted straw. We now sighted and smelt the smoke pouring from the yellow lip, which looks as if the sun were ever shining upon its golden surface, and which stands out conspicuous from the slaggy, cindery, and stony hills. At five P.M., after a ride of four hours and a half, we reached the northern or smaller vent, an oval opening to the north-north-west, and we placed our nags under shelter from the wind. The hair was

¹ Thus in the Dictionary. Baring-Gould (p. 429), or possibly his printer, calls it Vell-humall, which would be "gold hop."

frozen on their backs into "*lamellæ nivæe et glaciales spiculæ*;" they had no forage beyond a bite at the Afrétt, and we were on a high, bleak level, the aneroid showing 27·10, and the thermometer 40°.

When the sun had doffed his turban of clouds, we sat upon the edge of the Little "Ketill" and studied the site of the Fremrinámar, the "further springs," because supposed to be most distant from the lake. From the Öraefi the pools seem to cluster about the yellow crater; now we see that they occupy all the eastern slope of the raised ground, the section of the Mývatns Sveit extending from Búrfell to Bláfjall. The northern vent is merely one of the dependencies of Hvannfell; the southern or Great Crater belongs to the "Blue Mountain." We presently turned southwards and ascended the Great Kettle, which Pajkull declares to be "probably the largest in Iceland." This Námakoll, "head" or "crown of the springs," is an oval, with the longer diameter disposed north-east to south-west (true), and measuring nearly double the shorter axis (600 : 350 yards).¹ The outer wall, raised 150 to 200 feet, is one mass of soft sulphur covered by black sand; every footstep gives vent to a curl of smoke, and we do not attempt to count the hissing fumaroles, which are of every size from the thickness of a knitting-needle upwards. With the least pressure a walking-stick sinks two feet. We pick up fragments of gypsum; alum, fibrous and efflorescent; and crystals of lime, white and red, all the produce of the Palagonite, which still forms the inner crust; and we read that sal ammoniac and rock-salt have also been found. The rim is unbroken, for no discharge of lava has taken place; the interior walls are brick-red and saffron-yellow, and where snow does not veil the sole, lies a solid black pudding, the memorial cairn of the defunct Hver or Makkaluber. From the west end no sulphur fumes arise; south-eastward the ruddy *suffioni* extend to a considerable distance.

The Appendix will describe the old working of these diggings, which did not pay, although the hundredweight cost only ten shil-

¹ In 1776 Professor Henschel found it "about 200 paces in diameter." (See Appendix, "Sulphur in Iceland," Section I.)

lings. At the southern end a staff planted in the ground amongst the hissing hot coppers still shows the labourers' refuge, a shed built with dry lava blocks. If Professor Henchel characterised them correctly as "bad, because all the sulphur was taken away last year" (1775), they have wonderfully recovered in the course of a century: evidently "all the sulphur" means only the pure yellow flowers lying on the surface. The mass of mineral is now enormous. The road to the lake is a regular and easy slope, and working upon a large scale would give different results from those obtained by filling and selling basketfuls.

From the summit of the Námakoll we had an extensive view of the unknown region to the south. Upon the near ridge stood the Sighvatr rock, the landmark of the Óræfi, from which it appears a regular pyramid: here it assumes the shape of a *Beco de papagaio*. I now ascertained that there are no northern Dýngjufjöll, or rather that they are wrongly disposed upon the map. I wonder also how that queer elongated horse-shoe farther south, the "Askja" or "Dýngjufjöll hin Syðri," came to be laid out; but my knowledge of the ground does not enable me to correct the shape. North of Herðubreið lay the Herðubreiðarfell, all blue and snow-white. To the south-west stretched far beyond the visible horizon the Ódáða Hraun, which most travellers translate the "Horrible Lava," and some "Malefactors' Desert" or "Lava of Evil Deed." The area is usually estimated at 1160 square miles, more than one-third the extent of the Vatnajökull, which it prolongs to the north-west. Viewed from the Námakoll it by no means appears a "fearful tract, with mountains standing up almost like islands above a wild, black sea." I imagine that most of the *contes bleues* about this great and terrible wilderness take their rise in the legendary fancies of the people touching the Útilegumenn, or outlaws who are supposed to haunt it. I observed that Hr Gíslason prepared a pair of revolvers in case we met them upon the Öxi; and I found to my cost that even educated men believe in them. Previous travellers may be consulted about the Happy Valleys in the stone-desert, the men dressed in red Wadmal, the beautiful women, and the hornshod horses. I can only observe that such a society has now no *raison d'être*; it might have had reasons to fly its kind, but a

few sheep lost during the year are not sufficient proofs of such an anomaly still existing.

All I saw of the Ódáða Hraun was a common lava-field, probably based upon Palagonite. It seemed of old date, judging from the long dust-lines and the stripes tonguing out into ashes and cindery sand. The surface was uneven, but not mountainous; long dorsa striped the ejected matter, and the latter abounded in hollows and ravines, caverns and boilers. Many parts retained the snow even at a low level, and thus water cannot be wholly wanting even in the driest season. Here and there were tracts of greenish tint, probably grass and willows, lichens and mosses; possibly of the lava with bottle-like glaze over which I afterwards rode. The prospect to the south-south-west ended with a blue and white buttress, an outlier of the Vatnajökull, which might be the (Eastern) Skjaldbreið.

We proposed to return by the eastern road *viá* the Búrfell, but our guide declared that the lava was almost impassable, and that the hardest work would not take us to Reykjahlíð before the morning. Having neither food, tobacco, nor liquor, and being half frozen by the cold, we returned *viá* the Afréttur; we passed to the east of Hverfjall, not gaining by the change of path; and after a ride of eight hours and a half we found ourselves "at home" shortly before eleven P.M. My feet did not recover warmth till three A.M.

August 9th was an idle day for the horses, which required rest before a long march to the wilderness; the weather also was rainy, and more threatening than ever. I proceeded to examine the Hlíðarnámar, or Ledge-springs, and to see what boring work had been done by my companions.¹ The "smell of rotten eggs," the effects of "suffocating fumes" upon "respiratory organs," which by the by can only benefit from them, and the chance of being "snatched from a yawning abyss by the stalwart arms of the guide"—we were our own guides—had now scanty terrors for our daring souls. They have been weighty considerations with some travellers; their attitude reminds me of two Alpine climbers who, instead of crossing it, sat down and debated whether, as

¹ The lay and the succession of the strata so much resembled those quoted in Mr Vincent's paper that they need not be repeated here.

fathers of families, they would be justified in attempting that snow-bridge. Perhaps the conviction that the "abyss" here rarely exceeds in depth three feet, where it meets with the ground-rock, Palagonite, may account for our exceptional calmness. The reader will note that I speak only of the Hlíðarnámar: in 1874 they tell me a traveller was severely scalded at some hot spring.

The Hlíðarnámar west of the Námafjall, which Henderson calls the "Sulphur Mountain," are on a lower plane than the Námar proper, east of the divide. They are bounded on the north by the double lava-stream which, during the last century, issued from the north-east, near the base of the Hlíðarfjall: to the south stretch independent "stone-floods," studded with a multitude of hornitos, little vents, and foci. The area of our fragment of the great solfatara extending from the mountain, where it is richest, to the lava which has burnt it out, may be one square mile. It is not pretty scenery save to the capitalist's eye, this speckled slope of yellow splotches, set in dark red and chocolate-coloured bolus, here and there covered with brown gravel, all fuming and puffing, and making the delicate and tender-hued Icelandic flora look dingy as a S'a Leone mulatto.

We began with the lowlands, where the spade, deftly plied by the handy Bowers, threw up in many places flowers of sulphur, and almost pure mineral. Below the gold-tinted surface we generally found a white layer, soft, acid, and mixed with alum; under this again occurred the bright red, the chocolate, and other intermediate colours, produced either by molecular change, the result of high temperature; or by oxygen, which the steam and sulphur have no longer power to modify. Here the material was heavy and viscid, clogging the spade. Between the yellow outcrops stretched gravelly tracts, which proved to be as rich as those of more specious appearance. Many of the issues were alive, and the dead vents were easily resuscitated by shallow boring; in places a puff and fizz immediately followed the removal of the altered lava blocks which cumbered the surface. In places we crushed through the upper crust, and thus "falling in" merely means dirtying the boots. Mr Augustus Völkner, I am told, has determined the bright yellow matter to be almost

pure (95.68:100). The supply, which has now been idle for thirty years, grows without artificial aid, but the vast quantities which now waste their sourness on the desert air, and which deposit only a thin superficial layer, might be collected by roofing the vents with pans, as in Mexico, or by building plank sheds upon the lava blocks, which appear already cut for masonry. According to the old traveller, Ólafsson, the supply is readily renewed; and Dr Mouat ("The Andaman Islanders") covers all the waste in two or three years.

Leaving our nags in a patch of wild oats, which, they say, the Devil planted to delude man, we walked up the Námafjall, whose white, pink, and yellow stripes proved to be sulphur-stones and sand washed down by the rain so as to colour the red oxidised clay. Here we picked up crystals of alum and lime, and fragments of selenite and gypsum converted by heat into a stone-like substance. The several crests, looking like ruined towers from below, proved to be box-shaped masses of Palagonite and altered lava; the summits, not very trustworthy to the tread, gave comprehensive prospects of the lowlands and the lake. Upon the chine we also found mud-springs, blubbering, gurgling, spluttering, plop-plopping, and mud-finging, as though they had been bits of the Inferno: the feature is therefore not confined, as some writers assert, to the hill-feet facing the Örafi. The richest diggings begin east of the crest, and here the vapour escapes with a treble of fizz and a bass of sumph, which the vivid fancy of the Icelandic traveller has converted into a "roar." My companions were much excited by the spectacle of the great *soufrière*, and by the thought of so much wealth lying dormant in these days of "labour activised by capital," when sulphur, "the mainstay," says Mr Crookes, "of our present industrial chemistry," has risen from £4, 10s. to £7 a ton, when 15 to 20 per cent. is a paying yield in the Sicilian mines, and when the expensive old system of working the ore has been rendered simple and economical as charcoal-burning. And we should have looked rather surprised if informed that all these mines were shortly to be extinguished by a scientific member of the Society of Arts.

In the evening, which unexpectedly proved the last when we

three met in Iceland, the conversation naturally fell upon sulphur and sulphur-digging. The opinion expressed by Professor Jönstrup, who in 1871 had used the six-inch boards, was also duly discussed. He was undoubtedly right in believing that for exploitation foreigners can do more than natives, and that money spent by the Danish Government would only weight the Icelander's pocket. But he gave a flourishing account to Mr Alfred G. Lock, who, after wooing the coy party since 1866, has obtained a concession for fifty years; the only limiting condition being that he is not to wash in running waters, an absurdity demanded by local prejudices. For many years the Iceland diggings were a "bone of contention" between England and France. In 1845, M. Robert, the same who quietly proposed robbing the Iceland spar, wrote, "Aussi doit-il bien se garder de jamais accorder aux Anglais qui l'ont sollicitée, la faculté d'exploiter ces soufrières; comme on l'a fait en Laponie à l'égard des mines de cuivre." Let us hope that under the enlightened rule of philanthropic Liberal Governments, nations have improved in 1874. But as the Iceland fisheries prove, the French rulers have ably and substantially supported their fellow-subjects, whereas ours find it easier and more dignified to do nothing, and to "let all slide." Nothing proves England to be a great nation more conclusively than what she does despite the incubus from above. Nothing is more surprising than to see the man whom you have known for years to be well born, well bred, and well worthy of respect, suddenly, under the influence of office or of public life, degenerating into the timid Conservative, or the rampant, turbulent Radical. But the do-nothing policy of late years must give way the moment pressure is put upon it, and popular opinion requires only more light for seeing the way to a complete change.

I did not visit the House-wich of old Garðar Svafarson nor the road by which the Mý-vatn sulphur has been shipped in small quantities to Copenhagen, but Mr Charles Lock kindly sent me a sober and sensible description, which is given in his own words.

"The Húsavík line is very good, being for the most part over gently undulating downs, with basalt a few feet below the surface; crossing no streams of importance, and having a fall of

1500 feet in a distance of 45 miles.¹ It is wrongly shown in Gunnlaugsson's map, for instead of being on the eastern side of Lángavatn it skirts the western shore of that lake, and it likewise passes on the western side of Uxahver.

"Húsavík harbour is a very good one, judging from the description given us by Captain Thrupp, R.N., of H.M.S. 'Valorous,' who spent some time there this summer. An old Danish skipper said it was perfectly safe when proper moorings were laid down, no vessel having been lost in it during the last thirty years. He has been trading between Copenhagen, Hull, and Húsavík for twenty-five years past, reaching the latter port each year about the end of February, and making his last voyage home in October. Between October and February there is generally a quantity of ice floating off the coast, which hinders vessels entering the harbour."²

I also asked my young *compagnon de voyage* to collect for me, upon the spot, certain details of the earthquake which occurred in the north-eastern part of the island, and which, as was noticed in the Introduction, did some damage at Húsavík. On the afternoon of April 16, three shocks were felt; two others followed during the afternoon of April 17; the second was remarkably violent, and throughout the night the ground continued, with short intervals of repose, to show lively agitation, which on the 18th reached its culmination. All the wooden huts were thrown down, and the stone houses were more or less shaken, the factory alone remaining in any measure habitable. Some cattle were killed; there was no loss of human life, but from twenty to thirty families were compelled to seek shelter in the outskirts. Nobody remained in the dilapidated little market-town except the Sýslumaðr, whose family left for Copenhagen in the steamer "Harriet," bringing the news to Europe—I met them on their return to Reykjavik, and they confessed having been terribly startled and shaken. During the three days after the 18th, the vibrations continued with diminished violence; they were unimportant in the immediate neighbourhood of Húsavík; they were

¹ As has been seen, I would considerably reduce these figures.

² This "banquise," as the French call it, is said to form a compact belt extended thirty miles from shore in the Skjálfandíffjörð.

insignificant about Krafla, and when the vessel sailed they had wholly ceased. There was also a report that the crater in the icy depths of the Vatnajökull had begun to "vomit fire."

This much the *Norddeutsche Allgemeine Zeitung* had informed me: Mr Charles Lock added the following details: "During the eight days of earthquake the thermometer (R.), during the night, fell as low as -8° . The direction of the shocks was from east to west, and some of them were very severe. The inhabitants were so much frightened that they crowded on board a vessel which chanced to be in port. I was not told that the effects were at all felt in the harbour. The *Sýslumaðr* slept in one of the streets for several nights. Many small cracks were left in the ground when the shocks had subsided; but these have since been filled up: some naturally, others by the peasants."

Let us now "hark back" to *Mý-vatn*.

As a wandering son of Israel once said to me, in my green and salad days, "Gold may be bought too dear." The question is not whether sulphur exists in Iceland; it is simply "Can we import sulphur from Iceland cheaper than from elsewhere?" Calculations as to profit will evidently hinge upon the cost of melting the ore at the pit's mouth, and of conveying it to a port of shipment: however cheap and abundant it may be in the interior, if fuel be scarce and roads and carriage wanting, it cannot be expected to pay. My opinion is that we can, if science and capital be applied to the mines. The digging season would be the hot season; and the quantity is so great that many a summer will come and go before the thousands of tons which compose every separate patch can be exhausted. But this part of the work need not be confined to the fine weather: it is evident, even if experience of the past did not teach us, that little snow can rest upon the hot and steaming soil. As one place fails, or rather rests to recover vigour, the road can be pushed forward to another—I am persuaded that the whole range, wherever Palagonite is found, will yield more or less of the mineral.

The first produce could be sent down in winter to *Húsavík* by the *Sleði* (sledge). When income justifies the outlay, a tramroad on the Haddan system would cheapen transit. The ships which

export the sulphur can import coal to supply heat where the boiling springs do not suffice, together with pressed hay and oats for the horses and cattle used in the works. As appears in the Appendix, turf and peat have been burned, and the quantity of this fuel is literally inexhaustible. It will be advisable to buy sundry of the farms, and those about Mý-vatn range in value between £300 and a maximum of £800. The waste lands to the east will carry sheep sufficient for any number of workmen. The hands might be Icelanders, trained to regular work, and superintended by English overseers, or, if judged advisable, all might be British miners. Good stone houses and stoves will enable the foreigner to weather a winter which the native, in his wretched shanty of peat and boards, regards with apprehension. Of the general salubrity of the climate I have no doubt.

The sulphur trade will prove the most legitimate that the island can afford. Exploitation of these deposits, which become more valuable every year, promises a source of wealth to a poor and struggling country; free from the inconveniences of the pony traffic, and from the danger of exporting the sheep and cattle required for home supply. And the foreigner may expect to enrich, not only the native, but himself, as long at least as he works honestly and economically, and he avoids the errors which, in the Brazil and elsewhere, have too often justified the old Spanish proverb, "A silver mine brings wretchedness; a gold mine, ruin."

These statements, printed in the *Standard* (November 1, 1872), have lately been criticised by a certain "Brimstone" (*Mining Journal*, August 29, and September 19, 1874). He is kind enough to say, "I have the greatest respect for Captain Burton as a traveller, but none whatever as an inspector of mining properties"—where, however, a little candour and common sense go a long way. And he is honest enough to own, despite all interests in pyrites or Sicilian mines, that the "working of the sulphur deposits in question may possibly, with great care and economy, give moderate returns on capital." His letters have been satisfactorily answered by Dr C. Carter Blake and Mr Jón A. Hjaltalín. It only remains for me to remark that nothing is easier than to draw depreciatory conclusions from one's own

peculiar premises. "Brimstone," for instance, reduces the working days to 150, when the road would be open all the year round to carts and sledges; he considers the use of sledges upon snow a "fantastic idea," and he condemns the horses to "eat, month after month, the oats of idleness," whereas they can be profitably employed throughout the twelve months either at the diggings or in transporting the ore. The statistics of Iceland emigration prove that even during the fine season a sufficiency of hands might, if well and regularly paid, be "withdrawn into the desert from fishing and agricultural operations," which, after all, are confined to the Heyannir, or hay-making season, and which take up but a small fraction of the year, between the middle of July to the half of September. Moreover, there is little, if any, fishing on the coasts near the northern mines. The report of the Althing shows that ten, and sometimes twenty, labourers worked at the Krísuvík diggings, where fishing is busiest, during almost the whole winter of 1868-69, and the silica mining of Reykjanes was not interrupted during December and January 1872-73. The spell is from five to six hours during the darkest months, the shortest day in Iceland being five hours. About mid-March the island night is not longer than in England, and from early May there is continual daylight till August, when the nights begin to "close in." The hands in the southern mines were paid from 3½d. to 6d. per hour. Professor Pajkull made the northern sulphur cost 3 marks per cwt., and the horses carried 3 to 3½ cwts. in two days to the trading station: Metcalfe also declares that 200 cwts. per annum were melted at Húsavík, and that the price was half that of Sicilian. "Brimstone" complains that the distance from the coast is variously laid down at 25 (direct geographical), 28½, 40, and 45 (statute) miles, when the map and the itineraries of many travellers are ready to set him right. He need hardly own that he has no personal knowledge of Húsavík, Krísuvík, or any part of Iceland, when he sets down "such necessary little items as loading, lighterage, harbour-dues, improving Husavik, brokerage, et cætera," confounding the ideas of Snowland and England. After a startled glance at the cost of British labour, "and, worse still, of idleness during the greater part of the year"—a phantom of his own raising—he asks, "What about the demoralisation

consequent on the latter, and on the inevitable use and abuse of the spirits of the country, in order to while away the time?" The Brazil is surely as thirsty a land as Iceland, yet my host, Mr Gordon, of the gold mines in Minas Geraes, would be somewhat surprised, and perhaps not a little scandalised, to hear that his white, brown, and black hands cannot be kept from drink. Briefly the objector's cavils may be answered in the "untranslatable poetry" of the American backwoodsman, "T'aint no squar' game; he's jest put up the keerds on that chap (Sicily) from the start." I have no idea who Mr "Brimstone" is, but I must say that he deserves a touch of his own mineral, hot withal, for so notably despising the Englishman's especial virtue—Fair Play.

On the other hand, my notes on the Mý-vatn mines drew from a Brazilian acquaintance, Mr Arthur Rowbottom, the following note, containing an inquiry which unfortunately I could not answer:

"I read your account of the sulphur mines of Myvatn with great interest and pleasure; and from your report I should feel disposed to believe that boracic acid exists in the same district. You will, no doubt, remember the conversation we had on board the 'Douro,' returning from Brazil, about the very large fortune made by Count Larderel out of the boracic acid produced in the Tuscan lagoons situated near Castelnuovo. Wherever native alum and brimstone are found, there are always traces of borate of soda in one form or another. Boracic acid exists at the Torre del Greco, and in Volcano of the Lipari Islands.¹ The locality where the 'Tincal' is found in Thibet is reported to be plutonic; in fact, nearly all the countries from whence the borate of soda is drawn are somewhat similar to the sulphur districts of Iceland; and I should feel greatly obliged if you could inform me if boracic acid or borate of lime exists in the island."

¹ It was there found by the late Sir Henry Holland; Dolomieu had some specimens, but he did not know whence they came.

CHAPTER XV.

RETURN TO DJÚPIVOGR AND END OF JOURNEY.

SECTION I.—RIDE TO HERÐUBREIÐ.

August 10.

WE were humanly threatened with rain on the fourth day, but my aneroid gave me better news. The principal difficulty was to find a guide for the southern Örafi. Hr Pétur's sons shrugged their shoulders and pleaded illness—" *pituitam habent*" explains the student—they swore that the farm horses were not strong enough to traverse the grassless waste. After a three days' search, I managed to secure a *dummer junger*, named Kristián Bjarnason of Eilífr, who had once almost reached the base of Herðubreið; and old Shylock lent him, for a consideration, two lean nags, with orders to go so far and no farther. My own stud consisted of eight, and only one of these carried the little tent and provisions—a loaf of brown rye-bread, two tins of potted meat, a diminutive keg of schnapps, and rations for my companions, the student Stefán and Gísli Skulk. The latter showed some alacrity in preparing to return home; as he had a grudge against Mr Lock, so he contrived to nobble all the ropes, and tried furtively to drive off all the baggage-horses. I looked carefully to the tethers of my nags, and personally saw them shod with good irons and new-made nails: I strongly suspect my henchman of having stolen a march upon me; he could not smash my hammer, but he managed to lose the extra nails. More than one shoe proved to be broken on the second day, and several were found fastened with only three mere "tacks," the best contrivance in the world for permanently injuring a hoof.

The start was, as usual, painfully slow; although I rose at five

A.M., the journey did not begin before 10.30. The Messrs Lock accompanied me part of the way; we were all to meet at Djúpi-vogr on the seventh day, but that meeting was not written in the Book of Fate. After shaking hands with the good Bowers, I pricked sharply over the plain, glad to escape the reeking valley of Mý-vatn; the cool and clear north-easter at once swept away the mournful *grisaille* of the charged sky; presently the sun came out, afflicting the horses, and the dust rose, troubling the riders. About half-way to the river we turned off south-eastward, and rode over the usual mounds, which resemble

“The grassy barrows of the happier dead.”

After this rough, tussocky ground came black sand, bordering black and ropy lava; the former was grown with oat-clumps seven to eight feet high, many of them dead at this season: they sheltered the normal vegetation, and extended immense roots to collect nutriment from the barren soil. The path was pitted, especially on the outskirts of the various stone-floods, with blind holes (Gjá), wearying, and even dangerous, to horses—I soon preferred the rougher riding. The floor-rock again was yellow Palagonite, barred with white waves, soda and potash. At four P.M. we crossed the Fjallagjá, a yellow wady, which might have been in the heart of Arabia Deserta; we were approaching its recipient, the foul Jökulsá. Finally, after entering broken ground of deep sand, and crossing a black hill, Gleðahús, the gled's house, we come to our halting-ground, Valhumall-lá,¹ the “low land of milfoil,” another wady, but black with sand, and showing lava-streams to the south. The guide declared that we were on the parallel of Vöidalr, which, however, could not be seen.

The day's work had been thirty-two miles, in six hours twenty minutes, and I was much pleased with it; no better proof was wanted to show the feasibility of travelling in the wilderness, at least wherever a river is found. All the features have names given during the annual sheep-hunts. We found tracks of the

¹ The Dictionary gives Lá, surf, shallow water along shore; and hair (Lanugo). I found it extensively used to signify a low place where water sinks, the Arab's “Ghadir.”

flocks and the ponies which had followed them, extending up to the Vatnajökull. To the south-west, and apparently close at hand, rose Herðubreið: viewed from the north, its summit, which is tilted a few degrees to westward, appears like a cornice perpendicular, and in places even leaning forward, whilst a solid conical cap of silvery snow ends the whole. In the evening air the idea of an ascent looked much like mounting upon a cloud; the more you craned at it, as the phrase is, the less you liked it; but I trusted that a nearer approach would level difficulties, and that the sides must be striped by drainage *couloirs*. The cold became biting before eight P.M., another reminiscence of the Asiatic desert, in which you perspire and freeze, with the regularity of the tides, every twenty-four hours: in both cases the cause is the exceeding clearness and dryness of the atmosphere, so favourable to the radiation of heat and to the deposit of dew. I slept comfortably in the tent pitched upon the sands, disturbed only by Stefán's hearty snores.

August 11.

The day broke badly indeed: at early dawn (aner., 28·55; therm., 41°) a white fog lay like wool-pack on the ground, making the guide despair of finding his path: at nine A.M. it began to lift, promising a fiery noon, which, however, was tempered by a cool north breeze. The men persuaded me to leave the tent; there are no thieves in the Icelandic desert, in this point mightily different from that of Syria: they declared that we should easily reach Herðubreið in two to three hours. We presently crossed a new lava-stream, the usual twisted, curled, "tumbled together," and contorted surface, in places metallic and vitrified by fire; here and there it was streaked with level, wind-blown lines of dust and ashes. Thence we passed into the usual sand, black and cindery, based upon tawny Palagonite, and curiously beached with pebble-beds; the rounded stones had been scattered on the path by ponies' hoofs. This sand was deeply cracked, and our nags, panting with heat, sank in it to the fetlock. The maximum of caloric at certain hours of a summer's day during a long series of years is far more equally distributed over earth than men generally suppose. Some have gone so far as to assert that it

is "the same in all regions from the Neva to the banks of the Senegal, the Ganges and the Orinoco;" and the range has been placed between 93° and 104° (F.) in the shade. In this island we are preserved from extremes by the neighbourhood of the sea, yet the power of the sun at times still astonishes me. The "Ramleh" (arenaceous tract) ended in a pleasant change, a shallow, grassy depression, with willows, red and grey, equisetum, "blood-thyme," wild oats, which abhor the stone tracts, and the normal northern flora. Here, as I afterwards found, we should have skirted the Jökulsá, made for the mouth of the Grafarlandsá, and ridden up the valley of the dwarf stream. The guide preferred a short cut, which saved distance and which lost double time.

To the right or north-west we could trace distinctly the golden crater, the Sighvatr pyramid, and the familiar features of the Fremrinámar. I again ascertained that a line of high ground, a blue range streaked with snow, trending from north-west to south-east (mag.), and representing the fanciful Trölladýngjur (*Gigantum cubilia*) of the map, also connects Bláfjall with the Herðubreiðarfell. The latter, separated by "Grave-land Water," a common name for deeply encased streams, from the "Broad-Shouldered" proper, is a brown wall with frequent discolorations, a line of domes and crater cones, now regular, then broken into the wildest shapes; in one place I remarked the quaint head and foot pillars of a Moslem tomb. A single glance explained to me the ash-eruption from the Trölladýngjur recorded in 1862, and the many stone-streams supposed to have been ejected from Herðubreið; they extended to the very base of the latter, and all the "Hraunards" (lava-veins) which we crossed that day had evidently been emitted by these craters.

At noon, after four hours fifteen minutes (= fifteen very devious miles), we entered a line of deep, chocolate-coloured slag and cinder, unusually bad riding. It presently led to the soft and soppy, the grassy and willowy valley of Grafarlönd, which is excellently supplied with water. I naturally expected to find a drain from the upper snow-field of the Great Cone; the whole line is composed of a succession of springs dividing into two branches, a northern, comparatively narrow, and a southern, showing a goodly girth of saddle-deep water. The weeds of the

bed and the luxuriant pasture amid the barrenest lava, "Beauty sleeping in the lap of Terror," suggested that in this veritable oasis, if anywhere, birds would be found. A single snipe and three Stein-depill¹ (wheat-ear) showed how systematic throughout this part of the country had been the depopulation of the avi-fauna. A few grey-winged midges hovered about, but I looked in vain for shells. The spring showed only a difference of + 0.5 from our sleeping-place. And now my error began to dawn upon me: the ride to Herðubreið would be seven hours instead of two to three; the tent had been left behind; the men had no rations, and "alimentary substances" were confined to a few cigars and a pocket-pistol full of schnapps.

But regret was now of no avail; and time was precious. After giving the nags time to bite, I shifted my saddle, and, at two P.M., leaving Gísli Skulk in charge of the remounts, I pushed on south, accompanied by Stefán and Kristián. We crossed the two streamlets, each of which has its deeper cunette, luckily a vein of hard black sand. Beyond the right bank of the Gráfarlandsá we at once entered the wildest lava-tract, distinguished mainly by its green glaze, fresh as if laid on yesterday. It was like riding over domes of cast-iron, a system of boilers, these smooth or corrugated, those split by Gjár and showing by saw-like edges where the imprisoned gases had burst the bubbles: near the broken cairns we found lines of dust which allowed the shortest spurts; the direct distance to Herðubreið was not more than two miles, but the devious path had doubled it. Again we had been led by the worst line; on our return, Kristián, having recovered his good temper, showed us a tolerable course. He frequently halted, declaring that his master had forbidden him to risk the nags where the Útilegumenn might at any moment pounce upon them.

At 4.30 P.M. I reached the base of Herðubreið, and found it, as was to be expected, encircled by a smooth, sandy, and pebbly moat, a kind of Bergschlund, whose outer sides were the lava-field, and whose inner flanks formed in places high cliffs and

¹ Depill is a spot or dot; a dog with spots over the eyes, according to the Dictionary, is also called "Depill." Cleasby translates Stein-delfr (mod. Stein-depill) by wagtail, *Motacilla*.

precipices. The formation at once revealed itself. The Broad-Shouldered mountain is evidently only the core of what it was. Its lower part is composed of stratified Palagonite clay, which higher up becomes a friable conglomerate, embedding compact and cellular basalt, mostly in small fragments. The heaps at the base are simply slippings, disposed at the natural angle, and they are garnished with many blocks the size of an Iceland room. Above them rise the organs, buttresses, and flying buttresses, resembling pillars of mud, several exceeding 300 feet; the material assumes the most fantastic shapes: in one place I found a perfect natural arch resting upon heat-altered basalt. The heads of the columns form a cornice, and from the summit of the cylinder an unbroken cone of virgin snow sweeps grandly up to the apex. Evidently the Herðubreið is not the normal volcano: it may be a Sand-gýgr after the fashion of Hverfjall, but of this we cannot be assured until the cap is examined. The chief objection would be the shape, the reverse of the usual hollow.

Leaving Kristján in charge of the horses, I attacked the slope in company with Stefán, from the north-east, and we gradually wound round to the east of the cone. The slopes were clothed with small and loose fragments of basalt, making the ascent difficult. Here rain-gullies radiated down the incline; to the south-east yawned a great *marmite*, a breach probably formed by a long succession of clay-slips and avalanches. The adhesive snow clinging to the rough conglomerate lay in fans and wreaths even against perpendicular walls, whereas in Europe large masses cannot accumulate at an angle of 45° , and the meteor is unstable and apt to break away when the angle exceeds 30° ; here it seems plastered upon the steepest sides, looking from afar like glistening torrents. After seeing the huge *névé* which clothes the mountain from the shoulders upwards, I was surprised to find that, although the ascent was broken by huge gullies which in spring must discharge torrents, the flanks are absolutely waterless; as on Western Snæfell, the drainage sinks through the porous matter and, passing underground, reappears in springs upon the plain, a familiar feature to the traveller in Syria. Yet the slopes carried the usual Iceland flora, of course shrunk and stunted by the cold thin air. I picked up the vermi-

form earths of some wild animal, which crumbled to pieces in my pocket: the farmers recognised the description, declared that they knew them well, but could not tell me what the creature was. None would believe me when I assured them that *Herðubreið* was a formation of "Mó-berg."

As we approached the upper pillars the lowlands lay like a map before us. Hard by the south-eastern foot sat the little tarn *Herðubreiðarvatn*, surrounded by soft mud, instead of rush and reed: the *Vatn* has no outlet, but it is perfectly sweet. Farther north there is a streamlet flowing, like the *Grafarlandsá*, through patches and streaks of green: it rejoices in the name of *Herðubreiðarlindá*, the "river of the spring of the Broad-Shouldered." Beyond the blue cone *Jökullslidá*—I am not sure of my orthography—which rises to the south-east, the Great *Jökulsá*, after broadening into apparently a shallow bed, forks, divided by a lumpy ridge, the *Fagradalsfjall*, which we had seen like a blue cloud from *Möðrudalr*. It has the appearance of a ford, but *Stefán* assured me that the farmers are deterred from crossing it by quicksands: this was afterwards contradicted. The eastern branch, lying upon a higher plane, again splits, enclosing the *Fagridalr*. On the "Fair Hill," and in the "Fair Dale," where outlaws are said formerly to have mustered strong, sheep from the eastern farms are fed upon the very edge of the *Ódáða Hraun*. We had an admirable study of the *Kverk* and the (Eastern) *Snæfell*, making the student remark that he was close to his home at *Bessastaðir*. As the sun sank, the peak projected a gnomon-like shadow on the plain, an affecting reminiscence of the *Jebel el Mintar*, which acts dial to "Tadmor in the Wilderness."

After an hour and a half of very hard work, for we had scrambled up nearly 2000 feet (aneroid, 26·60; thermometer, 35°), we reached the mud-pillars, and serious difficulties began. My *camaro*, who walked pluckily enough, could mount no more. I had taught him the rule of volcano-climbing on stones and descending on cinders; of using the toes when going up and the heel when going down; and the consequence was that his Iceland slippers and stockings were clean worn away, and in a few minutes his feet would be cut. I left him and sought a *couloir*,

which by careful "swarming," might have opened a passage. But here a new difficulty was added to ever-increasing darkness and to numbing cold. In Switzerland the rock cannonades are most frequent between midnight and dawn: here the blocks of basalt, detached by the leverage of sun and frost, begin to fall as soon as the temperature lowers. The *couloir* was too narrow for swarming up the sides, which are less risky than the centres. After three narrow escapes, in one of them my right hand saving my head, I judged that the game was not worth the candle. Though close to the snow (aneroid, 26·55), it would have been impossible to reach the summit alone, in the night and over an unknown field.

Descending in double-quick time—"devouring space," as Belmontel says—we soon reached the moat which separates the castle from its outworks of lava, and refreshed ourselves at the little tarn. During the descent I observed a feature, before hidden from view; a lumpy tail with two main bulges prolonging Herðubreið to the south-west: perhaps the next attempt might succeed if this line be followed. From the Herðubreiðarvatn we took the south-eastern line, where the lava-field was by no means so horrid. After an hour, striking the Herðubreiðarlindá, also an affluent of the Jökulsá, we hurried down the right bank, frequently crossing when the soft and rotten ground threatened to admit the ponies. Finally, we traversed in fifteen minutes a divide of lava, we forded the double channel of the Grafarlandsá, and at 9.45 we were received with effusion by the solitary Gísli. Those who follow me will do well to ascend the left bank of the Jökulsá, to trace the Grave-land Water to its source, to pass over the lava-breach, and to follow the Lindá where it rises from the plain.

The day's ride had occupied nine hours thirty minutes, and the unfortunate "tattoos" were not prepared for some four more: moreover, *les genoux m'entraient dans le corps*, as the *gamin* says. The blood-red sunset promised a fair night, free from wind and fog, and, although we were some 1400 feet above sea-level, a bivouac in the glorious air of the desert under

" Cette obscure clarté qui tombe des étoiles,"

could not be considered a hardship. No one thought of a fire

till I set the example of collecting willow-roots, and then all, beasts as well as men, were greatly comforted by the short, sharp bursts of blaze. The poor fellows offered me a share of their only viaticum, a bit of bread and sausage, but I saw by their longing, hungry eyes that their necessities were greater than mine. A blanket instead of the oilskin from my saddle-bag would have been a comfort; but even without it I slept like *un bienheureux*, and awoke lively as a lark. What a different matter was my night in the open below Fernando Po peak!

That morning I had set out to "plant a lance in Iceland," by mastering the Herðubreið; for once utterly deceived by the clearness of the air, I had despised my enemy, and he got the better of me—the general verdict will be, "Serve you right." My consolation was that, though beaten, I had hardly been fairly beaten; the fog was not to be controlled; the guide led us by the worst paths, and we crept over lava after expecting to move fast. The altitude is laid down at 5447 English feet above sea-level; and as we rode up to the base, about 1500 feet high, there remained only 4000 feet, which would not have taken more than five hours. Such was my calculation, and it erred by being drawn too fine. Nor could the attempt be renewed next day. I had promised to send back to Mr Lock my only companion, Stefán, whose foot-gear was in tatters; Gísli and Kristián would have seen me in Ná-strönd, the shores of the ignoble "straw-dead," rather than accompany me over an unknown snow-field, and such climbing must not be done single-handed.

SECTION II.—RETURN TO VALTHÍÓFSTAÐIR AND STAY THERE.

August 12-16.

There is little to say concerning these five days, which were spent in returning to Valthíófstaðir by devious ways. On August 12th the world, according to local belief, was to have been destroyed; knowledge has increased since A.D. 1000, so no one made preparation, spiritual or material, for what Hindus call the Pralaya, hourly expected by primitive Christianity. *Je m'en moque comme de l'an quarante* (1740). At three A.M. we rode down the

cold valley of the Grafarlandsá, picked up the tent, and bidding adieu to the good Stefán and the miserable Kristián, we reached the Jökulsá ferry after a total of six hours forty-five minutes. The blood-red sunset had kept its promise till clouds rolled up from the south, and I have seldom had a more thorough dusting.

At early nightfall suddenly appeared Mr Pow and his guide, Jón Pétursson, son of the old priest of Valthiófstaðir: they had been paying a visit to Mý-vatn, and now they were hastening home for a wedding. The former had been making inquiries about sheep-farming; he believed that, in that line, something might be done whilst the pony traffic was thoroughly worked out. Farms ranging from \$3000 to \$6000 are readily bought throughout this part of the country. As the snow begins upon the Heiðis in November, lies deep in December and January, and lasts till May, it would be necessary to allow one ton of hay per thousand head, and the import price, excluding freight, must be computed at £2, 10s. rising to £4. He was sanguine enough to expect a cent. per cent. profit: I never heard that the project had any results.

Next day we started betimes in the cool east wind, which presently chopped round to the south, and gave us a taste of Sind and the Panjáb—all the sand of the Arabian desert seemed to be in the air, and it was the sharpest of its kind. We enjoyed a headlong gallop not unworthy of the Argentine Pampas, halted a few minutes at the Möðrudalr oasis, and pressed on to Vetur-hús: here we parted as I wished to examine the lake region, and to inspect the Brú of the Jökulsá.

On the next morning, which, after the stillness of dawn, also obliged me with a dust-storm, I set out at eight, rounded the swamps and black bogs, and, after crossing a marshy divide, entered the valley between the Eiríkr and Thríhyrning hills. The land is poor, but it manages to support two little Sels. At last we came upon the Thverárvatn, the southernmost of the tarns, and following the right bank of its drain, the Thverá,¹ we reached the Brú after an hour and a half's hard riding. It still

¹ Thverá, the "thwart-water," from Thver, Germ. Quer, and Eng. Queer, is generally translated Crooked River, Rivière à travers: the term is often applied to a tributary which strikes the main stream at a right angle.

preserves the traditional name although the natural arch of rock fell in 1750: in Henderson's day it was succeeded by a wooden bridge, and now there is only a cradle. Horses are forded about a mile up stream, where the break becomes a broad, split by holms and sand-banks. The seedy little chapel of Brú wants cross and steeple: it is built of turf, like that of Mý-vatn.

We left the river at 10.30 A.M., and resolved to inspect the Aðalbólsvegr, the southernmost road across the Heiði. It begins by crossing a divide, after which, rounding the Vaðbrekka, or ford-ledge hill, it ascends the dusty valley of the Hrafnkelsá. Two farmlets, Vaðbrekka and Aðalból,¹ the latter with four gables of wood and turf, and backed by Laugs of warm water, hug the left bank. After fording the stream thrice we walked up another divide, where the path was cobwebbed and all in holes—these "dead roads" are by no means pleasant travelling. The upper plateau was, like the northern line, the usual scene of standing waters and flowing waters, especially the Höllná and the Heiðará; all these soppy black beds are named, but none appear in the map. The list of this day's birds comprised a few snippets, three ravens, and a couple of whoopers (*C. ferus* or *C. Bewickii*?) which travellers often mistake for sheep. It was not my fate in Iceland ever to hear the sweet song of the swan, which borrows an additional charm on dark wintry nights from the popular belief that it promises a thaw; the poetical fancy of its being a death-lay seems here unknown. The descent to the Fljótsdalr occupied half-an-hour, and after seven hours forty-five minutes of rough riding from the Brú I reached Valthiófstaðir, where they did not expect me before nightfall.

There was revelling at the parsonage, and though I missed the howling of hymns and hollaing of anthems, the splendid "upholstering" of the girls, and the starry veil which takes the place of orange-flowers, I was in time for the feast. The daughter of the house, a notably good manager, was the bride; the bridegroom was a well-to-do widower of eighteen months' standing. Hr Nikólás Jónsson had learnt joinery at Copenhagen, and found his handicraft pay well at Seyðisfjörð. Ponies, with all manner of

¹ Aðalból is a manor-house, a farm inhabited by its master, opposed to a tenant farm.

gear, including the "handsome brass woman's saddle" of a certain English traveller, filled the stables, or browsed about the tún, showing a goodly gathering of relatives and friends; even Seyðisfjörð sent forth its contingent. Those who had dined were chatting and "touching pipes" on the green: despite my garb being the reverse of a wedding garment, I was hospitably pressed to join the second detachment. After we had satisfied hyperborean appetites, the speeches began, prefaced by loud cries of "Silentium!" As many of the orators were priests and students training for the priesthood, few could plead "unaccustomed to public speaking," and most of them acquitted themselves remarkably well. Mr Pow, after delivering his sentiments in English, sprang out of the window to prepare for a wild ride; I aired my Latin, concluding with an effective sentence, "Deus sit propitius his potatoribus"—of course ignoring Walter de Mapes. Having talked ourselves "dry," we installed a "magister bibendi," and fell to with a will; we were loud in our mirth "as the Ritur (tarrock-gull) on the rocks," and the bottles of Cognac and rye-brandy required repeated replenishing, till the small hours sent us to bed. The newly-married couple slept at home, and next morning, after coming to breakfast, they took horse and went their ways.

At Valthiófstaðir I was fortunate enough to meet Prófastr Sigurður Gunnarson of Hallormstaðir, whose name has already been mentioned. A portly, good-looking man of sixty, hardly showing fifty, he is a good Latinist, and his genial manners make him a general favourite. He first accompanied Professor Gunnlaugsson in 1832 to the Vatnajökullsvegr, and since that time he has made three trips to the northern edge. He gave me the position of the volcano (N. lat. 64° 20', and W. long. G. 30° 20'), which appears upon the map. When told that Herðubreið was a mass of Palagonite, he declared that he had seen Mó-berg at Lomagnúpr and other hills of Sera and Floskeldar; moreover, that he suspected it to be the constituent of the Kistufell and the Kverk, which he had passed in the dark. He assured me that he had found the Western Jökulsá easily fordable after its fork, where it is called Kreppa, or the Squeezer.¹ Among other places which

¹ From the verb Kreppa, to cramp, clench. The map gives the name to the eastern headwaters of the Jökulsá, rising from the Kverk.

are shown by the map, he mentioned the Lindákeilir (fountain-pyramid) with its two springs, the northern cold, the southern hot; the Hvannalindir, rich, as the name shows, in Angelica; and the Kringilsá, or encircling water.

The morning after the feast was spent in breakfasting, in chess-playing, and at cards, with coffee-beans for counters: on this occasion the men ate first, and after them the women, somewhat after the fashion of the Druses: the parson's wife also waited, like an "Oriental," upon her younger brothers. The friends mounted their stout nags, and disappeared after the normal salutations: amongst them was the Prófastr, with coarse woollen stockings sensibly drawn over his shoes. The kith and kin waited till two P.M. on the next day, and, when the heartiest and smackingest of busses had been duly planted upon projecting lips, all rode off, escorting the bride and bridegroom, and escorted by the family *honoris causá* as far as the next farm. Mr Pow had agreed to join me in attempting the Vatnajökull; but, whilst I remained to collect provant and to avoid the heavy weather which threatened, he resolved upon a preliminary trip, with the prime object of shooting a reindeer. He hired for \$2 an old round-ball Enfield from the farmer-ferryman of Bessastaðir, who, apparently convinced of the Enskimaður's insanity, snatched it three times out of his hands, till he received a watch in pledge. The solitary march was hardly to be recommended. About the Vatnajökull fog or snow may cover the world at any moment, even in July, the best month; and dozens of sheep are often killed by a single violent storm. Mr Pow set out early on the 15th, missed the road, and returned at eleven A.M. on the next day, thoroughly dazed, and apparently unable to give any account of his march—Jón Pétursson's eyes filled with tears at the sight. That trial proved sufficient for my intended companion, who, as soon as his two nags could move, set out for Seyðisfjörð.

The weather, which had been surly and wrathful for some time, could no longer restrain its rage: the afternoon (August 16) was bad, and the evening was very bad. The day sped wearily watching the cloud-battalions as they scaled the seaward hills: here this easter and deflected norther brings heavy rains and thick raw mists; the souther and the south-wester are little

better, and men rely only upon the western wind, which comes from the arid lavas and sands of the Ódáða. The night was one long howl of storm; "drip-drip" resounded from the church floor, and the wind flung itself against the building, threatening to bear away the frail steeple into space. Huge black nimbi, parted by pale and sickly gleams, ever greeted my sight as I gazed in sorrow from the casement of my ecclesiastical lodging. But joy came in the morning: first a glimpse of blue sky between the flirts of rain, then a sign of the sun. The river was reported to be rapidly filling—never mind, unlucky Friday has passed by, and we may look for better things on Saturday.

The provisions, bread, meat, and cheese (\$3), with the unfinished keg of schnapps, were awaiting our departure. But Stefán Pétursson, who was to accompany me, had fallen ill, the malady being probably that popularly called in India a "squiffy quotidian:" so I engaged as guide the student Thorsteinn, who had led us to Thorskagerði, paying for him and his nag \$3, 3m. Osk. per diem. Gísli, the "coal-biter," when drawn badger-like from the kitchen, again tried to shirk, pleading the weakness of the ponies, but a threat to withhold wages reduced all opposition to a slackness of the knees, a settled melancholy, and a hurt-feeling expression of countenance. This time he was never left alone with the horses after they had been shod: he presently revenged himself by displaying an amount of appetite which threatened the party with starvation, if it lingered in the wilderness a day longer than he liked.

SECTION III.—THE RIDE TO SNÆFELL: VIEW OF THE
VATNAJÖKULL.

Saturday, August 17.

I managed to draw the sleep-thorn from Gísli's ears and, after the usual silly delays, to set off at 9.45 along the left bank of the Fljótsdalr, *alias* the Norðurdalr: the wind was still southerly, clouds came from the east, but the aneroid was rising and the sun was taking the master's place. The broad trap valley sup-

ports, on either side, many farms and Sels; Glúmstaðir, Hóll, Thuriðarstaðir; the large Egilstaðir, highest on the map, reached in two *orette*; and Kleif, with its Sætur and backing of western hill. The angry stream is crossed in many places by ropes and cradles; gradually it becomes a torrent-gorge, and the whole length receives a least a dozen rain-bred cataracts: everywhere we saw their smokes and heard the dull charge of cavalry, whilst the rattling of stones upon the sandy beds sounded like the distant pattering of musketry. There was, however, no difficulty in crossing the mouths and, after three hours fifteen minutes of mild work, we rested the nags and changed saddles at the sheep-house of Kleif.

Beyond this point the torrent-gorge is impracticable, and we ascended the rough, steep left bank, whose lower levels were garnished with stunted birches: it led to the monotonous Heiði, which I had now passed thrice. The streams on this line were more troublesome, owing to the slippery crossings of sheet-rock. We forded the Stóri-lækur (big rivulet) four times, and twice the upper waters of the Öxará above its ugly little cataract in a dwarf valley. A short tract of sandy, willow-grown ground led to the Laugará, which was girth-deep. Riding down its right bank, we came to the Laug, which much resembles that of Reykjavik: the waters show boiling point at the source, and 115° (F.) a few yards below. It lies on the north-eastern slope of Laugarfell, and nearly due east (mag.) of the pointed black cone Hafrsfell: these two detached hills, disposed upon a meridian, are mere outliers of Snæfell. Fifteen yards west of the Laug is the Laugarkofi, or the Warm-spring-cell, a hut some 7 feet by 6, with dry stone walls sunk two feet in the ground: the rafted roof is supported by a central post, and made tight with turfs. We were happy to find it in repair. The weather again broke, and a Scotch mist settled stubbornly upon the dreary landscape; the aneroid showing 27.60 , and the thermometer 38° . Our day's march had lasted only five hours fifteen minutes, and on return we easily covered it in three hours fifty minutes. The night in a warm and (comparatively) clean nest, with the howling wind outside, would have been delightful, but for misgivings about the morrow.

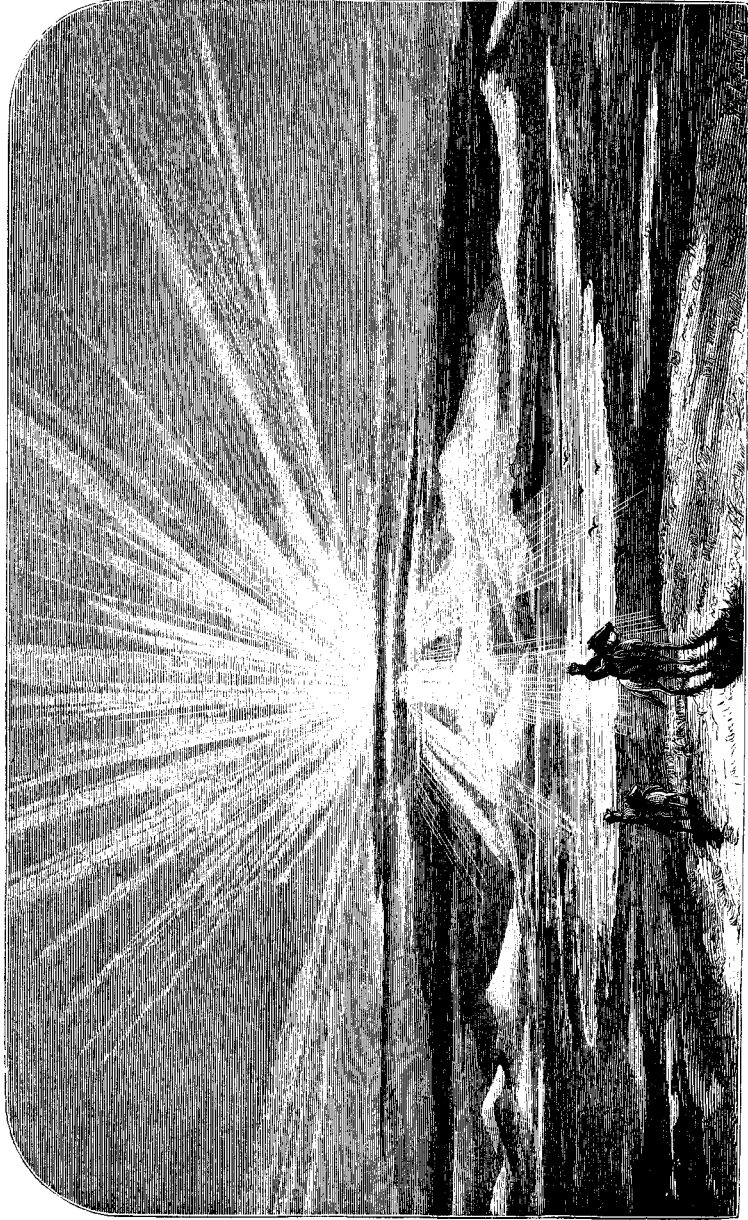
August 18.

I rose at dawn with no little anxiety; in these altitudes man is wholly dependent upon weather: it is like a Polar expedition on a small scale. The rainy and windy night had cleared the air, and the sun rose bright, bringing with him a stinging and intensely dry¹ south wind from off the Jökulls. The baggage pony was loaded, and all preparations were made by 8.45. We began with the rotten and boggy ground, draining the Snæfell and its north-eastern outliers to the Jökulsá. Here began the trouble which lasted more or less throughout the morning. The surface is cut by gullies and earth-cracks, often twenty feet deep, and varying from a yard to ten yards in breadth. Few could be leaped by untrained animals, and the many which could not be crossed caused detours either up or down, often a furlong to cover a perch. The smaller sort were the most troublesome, owing to the badness of the take off and landing: the nags made themselves ridiculous in attempting to scramble over, with their hind legs in the hollows, whilst the forehand was holding on the farther bank. In the worst places, at least one of the caravan was sure to be sprawling upon the ground. The best parts were the stony spots, and the medium were the swamps, especially where Fífa and bright mosses spangled the ground.

The wind now veered to the south-west, and after two hours we easily forded the Hafrsá, a drain rising in the south-east of its "fell." The latter, seen from the eastward, proves not to be a single cone, as the map shows; behind the knob lie a jagged, saw-toothed ridge and sundry outliers. At a distance, it appears to be lava, but when riding over it in the afternoon I noticed that such form of erupted rock is wholly absent from this line. The material, like that of Herðubreið, is Palagonite, which doubtless forms the base of the northern Vatnajökull. Unlike the basaltic conglomerate of the Broad-Shouldered, however, it is puddinged with cinders reddened and charred by the flames. The colours are ruddy, black-brown, chalky-white, green, and yellow, the two latter extending in a band through Snæfell from

¹ The experiments of M. J. M. Ziegler of Winterthür show the drying power of ice; a difference of 32° per cent. humidity in the glacier air and in the air of the adjacent plain.





VIEW OF THE VATNAJÖRULL FROM THE SOUTHERN SLOPE OF (GASTERS) SNARELL.

R. F. B. *del.*

south-west to north-east. Scoriæ also are scattered upon the sand, and these, with a strew of basalt, make up the sum of the surface rocks.

At noon we forded the Thjófagilsá (water of the thief's gil) below the little waterfall dashing down columnar basalt, and we halted near the Hálskofi, a hut like the nest near the Laug. After half-an-hour we resumed our ride along the eastern flank of Snæfell, which greatly altered in shape. The first view (August 2) from the heights above Hallormstaðir showed a Háls or *col* to the north, in fact the Snæfellsháls of the map, which should be countermarched to the south: "Snowfell" also seemed attached to the Vatnajökull by a long Rani, or tongue of raised ground, to which it acts tip: this must be changed for lowland and lake; and the shape suggested climbing on the western side, where it is almost perpendicular. Viewed from the north-west (August 14), Snæfell hill assumed a sphinx shape, the hindquarters being like those of Herðubreið to the south.

Snæfell projects to the north-north-east, or above our path, a long clean *arête* of yellow Palagonite, flanking a great fissure: the lower parts are here snowy, the upper are revetted with dark conglomerate. Behind, or to the west of this ridge, is a large snow-field, one of the many buttresses, extending to the flat-topped summit. We ascended stony ground when working to the south; and here an unpleasant surprise awaited me. Instead of the clear course of the little Jökulsá draining the peaks and pins of the Snæfellsjökull, a northern section of the Vatnajökull, the whole expanse lying between the glacier and the height upon which we stood formed a broad and apparently shallow lake, in part composed of clear pools, and the rest of muddy veins. At its head is a great depression in the Jökull, marked eastward by Eyjarbakki (island bank), a black cone, which may be a crater. The delta-shaped mass of water projects its point to the north, where we can distinctly see it falling over the Eyjarbakka-foss into the Jökulsá gorge. This formation may be temporary, dry ground flooded by the late rains: the farmers, however, know it by the name of Eyjarbakka-vatn. Permanent or not, it was utterly impassable without boats, whilst the Jökulsá was too full to be forded.

A near view of the Vatnajökull, from the south of Snæfell, confirmed my previous impressions. The snowy base-line is formed by the descending angle of the wind: this must explain how all is congealed at a height where Snæfell is free from frost (aneroid, 27'75): perhaps the thrust from behind may perpetuate the *névé*. Beyond the long white wave, pure ermine above, and below spotty like a Danish dog, stretching far to the west, rose the quaint form of Kverk, the throat or angle beneath the chin,¹ with two big, blue buttresses to the east: the black outlier of conical shape has a deep gullet to the north, vomiting a light-blue glacier upon the snow-fields lying at the base; it is prolonged north by the Kverkhnúkrani (snout of the gullet-knoll), apparently containing two distinct patches of volcanic aspect.

Resuming our ride to the west over the true Snæfellsháls, whose stony flanks delivered us from bog and earth-crack, we found that even here the summer pasturages are not unused. The dandelion and the violet, dead elsewhere, still enjoyed the autumn of life; sign of reindeer was seen in two places, and we flushed sundry coveys of ptarmigan. A couple of ravens and a snow-tit composed the remnant of animal life; happily for us the midges were absent.

At two P.M. we reached our farthest southern point, the long dorsum which prolongs Snæfell southwards to the Snæfellsháls. On the far side of the *col* rose Thjófahnúkr, a big, black, cindery cone, like the rest. Between it and the northern hypotheruse of the Vatnajökull lay a dark saddleback, with all the appearance of a volcanic crater; the absence of lava may be explained by its vomiting, like Hverfjall and Herðubreið, cinder and ashes. As we turned up the Thjófadals, between the Thieves' Knoll and the Snæfell proper, the ice-wind struck full on our backs. The amphitheatre was girt on both sides by jagged, rocky peaks, like the edges of bursten bubbles and blisters; and the shoulders of Snæfell projected to the south-west, a sharp ridge and a cone of warm-yellow Palagonite—here the ascent would have offered no difficulties. This part of the valley discharges to the south

¹ Thus in the dictionaries; but it seems to have another sense in popular language.

many streamlets of melted snow, some clear, others of white water. Crossing the divide, we struck the Hrafnkelsá, which is prolonged by the Jökulvisl and the Sauðará (sheep-water) to "Jökulsá of the Bridge." The line presently became a deep and grisly gorge of black and copper-coloured Palagonite; and we passed sundry long bridges of hard snow which were excellent riding. So far I can confirm the experience of the French naval officers, who assured me that in Iceland these formations, so redoubtable farther south, offer no risk.

At four P.M. we halted for an hour at the head of the Eastern Jökulsá, quietly enjoying the warm western exposure. From this point there was an extensive view of the river-drained plain which, broken by detached lumps of hill and broken ridges, separates Snæfell from the eastern edge of the Ódáða Hraun. When the nags had enjoyed a bite we resumed the descent of the deep and broken river-valley that passes between the Hafrsfell and its western outliers: the buttresses and banks of loose wind-blown sand descended bodily with our weight. Again we saw a spine of Palagonite, showing a fair ascent to the upper snow-field; and we looked in vain for the delicate ripple-marks which from a distance betray hidden crevasses. Here the surface material melting in the sun sinks into the lower strata, making the whole a solid mass—hence the glacier growth which exists in Greenland, and which is suspected in Iceland. As we rode under the precipices of North-western Snæfell, the snow, sliced off as if by a razor, forms a wall some fifty feet thick, soft above, and below pale-blue, like the Blaabreen of Norway, where hardened to ice by excessive pressure. This fine "snout" showed a few thin ribbons, but nothing like "veined structure," that vexed subject of the glacialists. The whole "snow-fond" for perfect beauty wanted only the lovely background of mazarine-coloured skies to be seen in more southern latitudes.

At six P.M. we forded the Hauká (hawk-water), one amidst a score of shallow, bubbling, pebbly streams, random rivulets, which the afternoon heat was setting free from the vast sheets of snow. Beyond Hafrsfell we recognised with disgust the sodden, rotten ground of the morning, and the weary ponies so lost their tempers that they seemed unwilling to rise after the

frequent falls. Yet I could not but admire the pathos, the strange double nature of the wild prospect. Here it was a hard and uncompromising photograph, a weird etching by Rembrandt or Doré, in which, from the vivid whiteness of the snow and the blackness of the rocks, the far appeared near: amongst the chaotic rubbish heaps there was no shadow within shadow, no dark as opposed to a light side. There, beyond a middle ground of steely blue plain, lay a "lovely Claude," a dream-landscape of distant Jökull. The delicate tints, cool azure-white and snow warm with ethereal rose-pink, seemed to flush and fade, to shift and change places, as though ghostly mists, unseen by the eye of sense, were sailing in the pale beryl-coloured sky. Anon the sun sinking towards the hilly horizon rained almost horizontal floods of light, transfiguring the scene with golden glory as every feature kindled and lit up with a peculiar freshness of expression—a region so calm and bright did not seem to be of this world. Yet a few moments more and its rare spiritual loveliness, passing through gradations of matchless tenderness, began to fade; the pale-grey shadow came, "stealing like serious thought o'er joyous face," and all disappeared in the dark nothingness of night. These splendours of the Trolls' home were well worth a journey to the "Brumous Isle," but the long search and the short fruition almost tempt me to "point a moral."

After some ten hours' hard work for man and beast, we were cheered by the steam rising from the Laug, and we again thanked Iceland for laying on such plenteous supplies of hot water. The memory of the last touching view, with its "wild beauty of colouring," moved me to issue, about midnight, from the nest and to compare the dark with the light hours. But the moon and stars seemed to count for nothing in that "inspissated gloom." The scene was

"All ruined, desolate, forlorn, and savage."

The deepening glooms made the silence something more oppressive—*τῆς σιγῆς βάρος*—than the mere negative of sound; it became an indescribably awful presence, weighing on and deadening to the spirit as the sense of utter solitude—even the nasal music within the Laugarkofi was a positive relief. I can

easily imagine a man lost in this utter stillness and swoon of Nature finding the horror and oppression unendurable.

SECTION IV.—FROM THE SNÆFELL TO DJÚPIVOGR.

To Gísli's infinite satisfaction, a vile sea-fog crept up the Jökulsá valley, slowly, but persistently, and, meeting scant opposition in the air, which the falling aneroid showed to be unusually deficient in weight, it spread, like the magical "Foka" of folk-lore, over the face of the upper world. Below us, we afterwards heard, all was merry as a fine May-day. I had intended to make the Kverk direct from "Snowdon," and from that vantage-ground to prospect the Kistufell and the Skjaldbreið, with "Trölladyngja," the bower of the Troll-Carlina. But in the words of Wordsworth's happy warrior, I did not see what I foresaw, and had only the cold comfort of reflecting—

"Est quiddam prodire tenus, si non datur ultra."

Icelandic exploration is "chancy" as Central African, and the traveller must expect to be the sport of circumstances far beyond his control, unless, at least, he can afford unlimited time.

The next morning (August 20) was also foggy: I waited till 8.45 A.M., and then all the *munitions de bouche* being thoroughly exhausted, the word was given for a retreat. The approach to Valthiófstaðir was perfumed, after the rancid moss and the hard snow-wind, by the fragrant crop of newly-mown hay. I bade friendly adieu to the family which had shown me so much kindness; to Stefán, who was still abed, and to Björn, the eldest son. A man of forty-six, and suffering from rheumatism, for which the parsonage is famous, he was the only Icelander who in physique realised my idea of a Saga-hero. The gentlemanly old-fashion parson put into my hands, when parting, an appeal which touched me, "Opto ubi de Islandiá locutus estis, benè rem referere."

My return-ride need not be described: it was over the same path, the only difference being the last half of the last day,

which is noticed in Chapter XIII. At Hallormstaðir I again missed Síra Sigurðr, who appears not to be of a very domestic turn. Reaching the Berufjörð parsonage at 4.45 P.M. on August 21, I found the ponies far too much fagged by a day's work of 5500 feet, up and down, for riding another twelve miles round the firth. The Reverend was absent from the Prestagarð, but his wife kindly found me a boat and a boat-boy, the student Thorsteinn taking the other oar. Progress was painfully slow, and the tall ghostly loom of Búlandstindr seemed to follow us like a "Fylgja," or fetch. We enjoyed all the pleasures of *l'humidité spéciale de l'eau de mer pulvérisée*; the bright phosphoric lights of the tropical seas were absent—indeed, I never saw them in Iceland. At this season the nights become real nights; the smooths in the water, alternating with ripple-lines, had no worse effect than to persuade the inexperienced lads that they were approaching land, and, as the skerries and drongs are thickly ranged along the southern shore, we were fortunate that there was no gale—

" Only the sea-fogs to and fro
Skipped like the ghosts of the streams below."

After six hours of mortal weariness, I landed with feet dead from sitting in cold water, and awoke Captain Tvede. My good friend turned out of his bunk; the cooper put the kettle on; sundry glasses of red-hot toddy were administered medicinally; and I went to my old quarters, well satisfied with having ridden, from under the very shadow of the Vatnajökull, in two days to the eastern coast.

The "balance" of my stay at Djúpivogur would not have been pleasant without the Ancient Mariner, who energetically assisted in preparing my diary and in paying off the guides, a matter of \$49. Hospitable Hr Weðvadt's son, the acting Systumaðr, presently joined us from Eskifjörð, and lectured me upon taxation in Iceland which, as the reader has seen, is "no joke." The only drawback was a certain nervousness touching the movements of the "Diana," which was to touch at Deep Bay for the last time this season. Alternate fog and rain, with faint attempts at clearing about mid-day, had lasted for a week,

and on August 24 the "Postdampskibet" was due. The sea-mist rolled thick as a bolster up the narrow line of Fjörð; I had almost abandoned hope, when suddenly we received the glad tidings of her being anchored at the mouth of the voe. Hurried adieux were exchanged, and we steamed for Reykjavik the same evening.

Rain and fog accompanied us the whole way; fortunately for me, Dr Hjaltalín was on board, returning from a visit to Denmark, or the lively "Diana" would have been a very purgatory of dullness. The rest of my tale is soon told. We made Reykjavik on the 26th. On September 1, I embarked on board an old friend, the "Jón Sigurðsson;" and steaming southwards cast a farewell view, while Iceland faded into the past, at the pale-gold and glittering silver of the Örafajökull.

On September 15, I landed at Granton.

CONCLUSION.

The past has been very short-lived of late, says the Duc de Noailles: the world moves fast, and even

" the naked, melancholy isles
Of farthest Thule "

have felt the civilising influence of the nineteenth century. During the two short years which have followed my visit, Iceland, after a generation-long struggle for political liberty and self-government, has conquered, by inscribing her name on the European list of constitutional countries. The "Annus Jubileus Millesimus" has been an "Annus Mirabilis:" the Present has met the Past: the "living antiquarian museum" has been honoured with a royal visit, which highly gratified the loyal, and which gave the disloyal an opportunity of declaring that "Iceland has laws." The Millenary festival drew a host of tourists and "Own Correspondents," even Hungary being represented, and a dozen octavos will presently be the result. The practical Americans brought with them a gift of some 2000 volumes

which will, when room is found for housing them, change the face of the Reykjavik library. As regards physical matters, Iceland has witnessed a new eruption of the Skaptár; and, as the map shows, the north-eastern side of the island is at this moment (July 1875) in violent volcanic action. The Kötlu-gjá, or Katla's Rift of many terrors, has been visited and found to be another "humbug;" and, last but not least, the Vatna-, or more probably the Klofa-, jökull has been penetrated by the enterprising Mr Watts and his party, who are reported to have planted the Union Jack upon the highest peak. I may conclude with the lines of the Millennial Memorial:

"Ages thou numberest ten, unconquered and long-biding Thule!
 Hardy mother of men, Thorr grant thee life through the ages;
 After thy sad, sad past, may Happiness smile on thy future,
 And Liberty, won so late, crown every blessing with glory."



STONE AXE IN MUSÉUM, REYKJAVIK.

APPENDIX.

SULPHUR IN ICELAND.

SECTION I.

LET us begin this subject with an extract from Hr O. Henschel's Report on the Icelandic Sulphur Mines, and on the Refining of the Sulphur. January 30, 1776. (Translated from the Danish).

I arrived at Krísuvík the 24th of June 1775, and immediately after my arrival I made preparations for examining the mountain of Krísuvík, with its mines and the surrounding neighbourhood. This mountain is situated two miles from the sea, the intervening space all the way from the sulphur mines being a tolerably level field, with only a few diminutive hills. The mountain stretches from north-east to south-west, and about two miles south-west from the mines it terminates in a plain, three miles of which are covered with lava. To north-east I did not examine the mountain more than three miles from the mines, because I found that in this direction the whole of it consisted of the same stuff, viz., of a very loose sandstone (Palagonite), except where the mines and the hot springs are to be found; there it consists of gypsum, and partly also of a red and blue "bolus," which, in my opinion, has been sublimated by acid vapours, and partly thrown up by the hot springs. In some places these soft earths have become a hard stone, the cause, being, no doubt, that the access of the water has been stopped in these places, and when the acid vapours could not any more penetrate through this soft earth, it became hard by degrees.

In some places the above-mentioned gypsum is found to be tough and sticky, and when it is dried slowly it has a greasy touch;

sometimes it is perfectly white, sometimes with red streaks, and one might take it for pipe-clay. One may therefore conclude, that by the acid, the effects of the rain and the sun and the rising heat, a fermentation has been brought about in this earth, and that it has thus become tough. Besides the already-mentioned variation, another kind of gypsum earth is found on the top of the mountain in hard sheets irregularly formed; here we probably see the effects of strong heat combined with absence of sufficient water, after the fermentation has taken place. In other places where this earth is saturated with sufficient acid, and partly dissolved by the same, and has, besides, a suitable or a natural degree of heat, so to speak, it is found in loose, reddish, and prismatic crystals. There is a considerable quantity of it, but it is never found deeper than from one foot to a foot and a half; the deeper you go the less solid it becomes, and at a depth of one foot it becomes quite fluid, because the heat is so strong, and the ground penetrated by warm vapours to such a degree that it cannot attain any solidity; in fire it loses its red colour. In short, this earth goes through so many changes, partly through the greater or lesser degree of heat, partly through a greater or less abundance of acids and water, and through the admixture of foreign substances, that it can almost bewilder one.

The blue "bolus" is found everywhere beside the boiling springs, and some of them are filled with it in such quantities that they are like a pot full of thick gruel. When the "bolus" has become hard it cannot be melted by the blow-pipe, but, in its natural condition, it attracts vapours from the air, and forms very fine white crystals, and at a distance they look like hoarfrost. This seems to show that this kind of stone must be impregnated with calcareous earth which has been saturated with vitriolic acid. That it must be this kind of earth in a hardened state is seen both from its form and from the flowers of pyrites that are mixed with it; for when one breaks off a piece of these earths in their soft and half-solid condition, the broken pieces have the same form, and are also interspersed with pyrites.

The red "bolus" is always found on the surface of the ground like the white gypseous earth, and is never covered by a bed of

another kind ; it is never mixed with the water of the boiling springs ; there is no sublimated sulphur where it is found, although the subterranean heat in some such places is quite as strong as where that process actually takes place.

Several hot springs are to be found here, and most of them contain the blue "bolus," but one contains white earth. These springs often disappear in one place, and break out again in another place where no spring has been before ; the probable cause is that the narrow pipes under the ground, through which the spring is supplied with water, fill up by degrees ; the strong heat transforms the water into very elastic vapours, which break through the ground where they find the least resistance, and thus a new hot spring is formed.

On a hill between the southernmost hot spring, called the Bath-room, and the more northerly springs, a hardened "bolus" is found ; it is so brittle that it can easily be broken between the fingers ; it is porous, and its holes are filled with hardened lime. At first I assumed this "bolus" to be a kind of lava partly dissolved by the atmosphere and the slow heat rising from the ground ; the lime I took for a kind of salt, which had been embedded in the lava, and let loose by its solution, and then settled down into the holes of the "bolus." But, upon closer examination of the solid state of this lime, and, after having tested it by aquafortis, by which it was brought to a high state of effervescence, I saw plainly it must be lime. I had tried to dissolve it in water, but without success ; if it had been a salt let loose by the dissolution of the molten lava, it must have been more loose and in a somewhat crystallised state. My idea is that the lime must have been sublimated by the hot vapours when the lava was already thrown out ; then it subsided into the holes of the lava and became hard. When I compared this earth with the lava of other places where volcanoes had been, from which the lava had spread far and wide, without undergoing any perceptible change or dissolution, I saw that this could never have been a lava. Although the lava of volcanic mountains is often confounded with slag produced by burning of the ground, I saw that this had never been melted to real slag ; and it seemed to me therefore probable, that it must

be a kind of hardened clay. I did not, however, find anything to confirm my conjecture until I came to Mývatn, where I found specimens of it in a soft and crude state.

The loose sandstone (Palagonite) already mentioned, which is found besides the most northern hot springs, is there much finer than in other places; it is of a slaty structure, and between the plates gypsum is found, so one might almost take it for alum plates. On the top of the mountain another kind of sandstone (trachyte?) is found; it is a good deal harder and burnt; it looks like millstone rocks from the Rhine, yet it is more porous; it is in irregular heaps, and never makes a whole mountain, as if it had been thrown over by earthquakes.

Near the boiling springs, where the ground is loose and porous, but especially where the heat has free ventilation through the above-mentioned gypseous earth, the sulphur is to be found. At the bottom it is dissolved and mixed with acid vapours; and when the sublimation has taken place, it becomes fixed in the outermost crust where there is a colder bed; and here it is found either in the shape of crystals, powder, or flowers; it is never deeper than one, two, or three inches under the surface, according to the greater or lesser degree of heat, or the greater or lesser porosity of the earth which forms the uppermost bed, as the sulphur bed itself, when it is in the shape of powder, is never more than three to six inches; and when in a crystallised form, never thicker than two to two and a half-inch, and three inches at the very highest.

These mines are not many, and do not cover a large space of ground; there are indeed a few spots here and there where sulphur is sublimated, but these spots are very small. The most important as well as the largest are the two mines highest up in the mountain; one of them is 120 yards long, and from 16 to 20 yards broad; the other is from 140 to 160 yards long, and from 20 to 40 yards broad. In these two mines the finest and best sulphur is found in the largest quantities. The bed covering the sulphur contains a great deal more of acids than the layer immediately below it, because the hot acid vapours rising from the depths below must keep the lower bed permanently acid and damp; the surplus acids are driven up through the

sulphur, and that portion of them which does not unite with the sulphur, comes to the uppermost crust, where it is dried by the combined efforts of the sun, the air, and the wind. Here the acids are therefore more concentrated, and consequently able to dissolve some portions of the gypseous earth with which it has become united; in this condition it makes a kind of flowers of alum, which, however, are partly vitriolic or blended with iron. I tried to examine the purity of this salt by dissolving it in water. When the water had been filtered it had a green colour; thereupon precipitated with alkali, it gave a white precipitate; and when this was separated from the water, the latter became after a while quite yellow, as if it had been coloured with iron rust. This salt cannot really be called alum unless we should call it *lime-alum*. Like alum it has a nauseous taste, but more pungent and almost caustic. When, after dissolution, it has become solid by evaporation, it is not nearly as close as alum, and no crystallisation can be perceived in it.

As the sulphur is sublimated in the manner above stated, and by condensation becomes fixed in the cold earth at the surface, it will be seen that the opinion is erroneous, that sulphur is generated in earth penetrated and made porous by the air. My instructions were to find out, by blasting the rocks, whether any traces of sulphur were to be found in them; but blasting was out of the question on account of the softness of the ground, the great heat, and the large quantity of hot vapours. The rocks must, moreover, be at a great depth, since all attempts to find them with the earth-borer, which was fifteen feet in length, proved unsuccessful.

Close to the mines on the south side heat is seen to have been in the mountain formerly. Here the same kinds of stone are found as at the hot spring, and the yellowish gypseous earth as well. By some cause or another the heat has been removed somewhere else. I was convinced that sulphur must be found here, as it might have been covered with earth after the heat left; but all my diggings, both with the earth-borer and otherwise, proved unsuccessful.

With the earth-borer I tried to ascertain the difference of the beds where sulphur is sublimated, and of those where it is not,

and where only a slight heat is felt. The first experiment was made in the northernmost mine. Below the sulphur I found a one-foot thick bed of the white gypseous earth; then there was a bed of fine blue "bolus," or an earth impregnated with flowers of pyrites here and there. In this bed the heat began to increase, and when I came to a depth of three feet the bed became a little harder, but, at the same time, warmer and coarser, as if it were mixed with gravel; and thus it continued to the depth of fourteen feet, when it became a little softer.

I examined another place where no considerable heat was felt. The white gypseous earth continued to the depth of a foot and a half; and in this place it was harder and more solid than where the heat had a free egress. Then came the blue earth; uppermost it was somewhat loose, but farther down it became so hard and close that the earth-borer could hardly penetrate it; the lower down the more it became mixed with pyrites, and was filled with gravel, as it were. At the depth of twelve to thirteen feet it became a little looser as I thought. It was the same kind of earth all the way through; the heat was intense.

The third place which I examined was at the most northern point, beside a small hot spring, thick with blue earth. Uppermost there was red "bolus" to the depth of one foot; then a bed of purple and a yellowish one, three feet thick; then a purple and bluish one, one foot thick. The heat increased with the depth; here the bed became very hard, and I found the blue earth impregnated with pyrites. This bed was ten feet deep; at this depth the heat was so intense that the water trickling down from the upper beds boiled violently, and prevented all further progress.

By these experiments I found that the conditions necessary for the sublimation of the sulphur are: *Firstly*, A sufficient quantity of water to keep the soil loose and porous, that the sulphur may pass through it, and to drive the sulphur vapours upwards. *Secondly*, That the water must come from below; for when it comes from above, it cannot penetrate through the blue bed in the absence of the rising hot vapours which keep the bed porous; and in that case the bed becomes harder and harder, and prevents the sublimation of the sulphur.

I tried in several places, both with the earth-borer and other-

wise, to discover some of the so-called dead mines, but without success. From the many experiments I made, I concluded that the volcanic mountains of Iceland must have been sulphur mountains or sulphur mines in the beginning; the blue bed became hard, and the sulphur vapours were thus prevented from being sublimated. Thus they became more condensed, and, at the same time, more elastic in the ground; then there arose in them a "heat-forming movement," by which the whole ground, which is very sulphureous, became violently shaken, and subsequently ignited, causing tremendous destruction.

MÝVATN.

Fremri-námar.

At Húsavík I obtained horses and workmen from the sheriff, and left that place the 9th of August, and arrived the 12th in the evening at the so-called Fremri-námar. At a distance of about one mile from the mines, there is a valley called Hellaksdalur, where there is a little grass, just so much as to give the ground a green colour, and this is the only green spot that is to be found here within a distance of many miles; yet there was not grass sufficient for the horses, but I had to bring with me hay for them, and water for the men. In this valley I spent the night, and the next morning, the 13th, I went to the mines, which are about ten Icelandic miles (11 indirect, 40 geographical) south-east from Húsavík, situated on the west side of a mountain called Herðubreið. On the top of the mountain there is a ridge or an eminence, from which there is an extensive view; but as far as the eye can reach in every direction, nothing can be seen but lava. This eminence is 1500 paces long, and equally broad, and about 120 feet high. On the top of the eminence there is a deep hollow completely round, and about 200 paces in diameter. From its shape it is called by the inhabitants a *kettle*. The south and west sides of this eminence, as well as the hollow itself, consist of lava, and it may therefore be concluded that the mountain has been an active volcano in olden times. On the north and east side the mines are found, and where these are the mountain consists of gypseous earth like that at Krísuvík.

A large quantity of sulphur is said to have been dug from the dead mines here; but now they are rarely found, because they have been worked annually, and the sulphur is not generated afresh in these as in the live ones. Thirty paces from the end of the valley, and also on the side of the mountain, the first live mines are found. In the valley they are about 60 paces long, and from 20 to 30 broad. On the side of the mountain they are 200 paces long, and from 20 to 30 broad. On the east side of the mountain, 40 paces lower than the mines above mentioned, other live mines are found 220 paces long, and 40 to 50 paces broad. From all these the sulphur has been completely cleared away, because the sulphur found here was very good and pure. The soil is moderately damp, and the sulphur has just as much water as (when converted into steam by the heat) is sufficient to raise it up, and to keep the ground in a loose and porous condition, so the sulphur can be sublimated through it without hindrance. Yet it does not make the soil too loose; in that case, small particles of earth would rise along with the sulphur, become mixed with it, and thus make it impure. In the mines, which, according to my guide's information, had been completely cleared of sulphur, there was already a new bed of sulphur one to two inches in thickness, but very impure. There are others which formerly yielded sulphur, now quite cold and ruined. The destruction of the mines, as well as the impurity of the sulphur, arises from careless digging. When the peasants dig the sulphur out of a mine, and particles of earth and impurities are sticking to it, they clear away the largest lumps; but they do not take care not to let the impurities fall down where they had taken the sulphur, where some flowers of sulphur always remain. For although the uppermost sulphur is tolerably compact and crystallised, the lowest is loose. The reason is that the uppermost bed is made more and more compact by the sulphur rising from below, and the acid phlegm surrounding the sulphur vapours cannot evaporate; the small sulphur particles are thus prevented from immediate contact with each other, but are enveloped in the superfluous phlegm. This is the reason why the lowermost sulphur must remain in the shape of flowers until the hard crust is removed; then the phlegm is exposed to

the air and evaporates, until the surface has become hard again. It will therefore be seen, that when the impurities fall into these loose flowers, and the fine sulphur is subsequently sublimated among them, the impurities will be imbedded in the sulphur, and must be taken out with it at a second digging.

Another reason for the impurity of the sulphur is this, that a man, coming to a mine to see how the sulphur is, thrusts his spade into the ground in various places, without first carefully removing the upper earth, whereby the sulphur and the earth become mixed together. If he does not think the sulphur good or abundant enough to be dug out at that time, he leaves the mine thus disturbed; and the rising sulphur is sublimated among the disturbed lumps of earth and sulphur, and the whole becomes a compact mass; it often looks quite pure, but turns out altogether different at the refinery. Thus a single man may in one hour destroy a great many mines that might have been excellent if more carefully handled.

One more cause of the impurity of the sulphur may be found, I think, in the following circumstance. When the peasants come to a good mine they take out all the sulphur that is to be found there, and do not take care how they tread down the loose earth below the sulphur; the down-trodden earth, over which the wind sweeps freely, becomes tough and hard when the heat from below is not strong enough to break through it, and thus keep it porous; thus the mine becomes cold and useless. In other places where the heat is strong enough to force the steam through the trodden earth, there is, however, this disadvantage: *Firstly*, It takes a longer time for the sulphur to arrive at a state of perfect sublimation than if the earth had remained in its porous condition. *Secondly*, The fresh sublimation will be impure. When one steps into the loose earth, deep holes, separated by thin ridges, will be formed. When the sulphur is formed in these holes, covering the ridges as well, it is evident that all these ridges must come out with the sulphur at a subsequent digging.

Those that work the mines must therefore be ordered: *Firstly*, To remove the earth before they dig up any mine, so that nothing shall fall into the sulphur. *Secondly*, When they remove lumps of earth from the sulphur, they must carry them outside the

mine. *Thirdly*, When they work a mine, they must first remove the uppermost earth; they must not completely empty any mine of its sulphur: they should leave the utmost border standing; then run a trench along the whole length of the mine, then leave a ridge standing, and run another trench, and so on until they have reached the utmost border, which they are to leave standing. Thus the wind will be prevented from having a full sweep of the mine, and thus making it cold. These trenches ought therefore to run across the course of the most frequent winds; these are here, in my opinion, a north-wester and south-easter. After one year the ridges left standing might be taken with the same precaution as mentioned above. The workmen ought therefore to be as much as possible prohibited from stepping into the mines; every digger should take with him a board to stand on while he digs, and this he should move with him as he proceeds. By these means the mines might be saved from being unequally trodden down, and the digger might escape from burning his feet, which he now frequently does, by sinking through the loose and hot soil.

On the east side of the mountain, below the above-mentioned mines, a red "bolus" begins, stretching round the mountain from south to north until it meets with a sandstone mountain; between the mountain and this ridge of "bolus" there is a little sulphur mine, and here the gypseous earth is found below the sulphur as usual. Digging up the real "bolus," I found it to be very loose and soft; it was full of holes, like the hardened one at Krísuvík, and the holes were filled with lime, very loose and gelatinous, and slimy to the touch. Under the "bolus" the earth was in many places hollow, and one hardly dared to tread there. Very hot vapours arise from the bottom, by which these earths are sublimated, for it is quite as hot here as in the sulphur mines. This is a very interesting circumstance, and well worth observing, that there are two places lying side by side, and presenting such a difference in the stuffs driven up from the bottom by the heat, which is equally great in both places. In one, however, sulphur is sublimated along with a strong acid, and in the other the above said lime is sublimated, and not the least acid is found in it.

Hliðar-námar.

The 15th I went to the so-called Hliðar-námar, which are about eighteen miles distant from the former ones. These are the largest of all the mines, and here too is the greatest heat; the sulphur is consequently sublimated in less time than in any of the others. At present there is a large quantity of sulphur here, but it is all in powder, or in the form of flowers; most of them are found in the mountains, as in the former places; and the sulphur bed is in many places six inches and more in thickness. The reason why the heat drives up greater quantities of sulphur here than in the former places is to be found in the looseness of the soil; it is not only much looser than in the former ones, but in some places even too loose and damp, which both makes the spot difficult to approach in order to dig, and fills the sulphur with earth and impurities, so as to make it useless. The reason why these mines are in such a good condition now is, that the sulphur brought from here to the refinery was not so well received as that which came from the Fremri-námar, or the so-called Theystarreykja-námar nearest to Húsavík. I admit that the sulphur found here is more mixed with earth and acids than in the other places; not, however, in such a degree as to offer any serious difficulties. But as the whole of the sulphur is in the form of flowers, and the earth immediately below it has nearly the same appearance, and cannot therefore be easily distinguished from the sulphur, the peasants do not, therefore, I think, separate the sulphur from the earth with as much care as where it is found in a more solid condition, and where the earth is more easily detected.

The mountain where these mines are situated stretches from north to south, and on the north side it goes a considerable distance beyond the mines. The same kinds of earth are found here as at Krísuvík, except the grey slate, of which there is none here, neither are there any variations in the gypseous earth; and very little of gypsum is to be found, which probably is owing to the higher degree of heat, or it may be because the heat has less interrupted egress, and consequently keeps the earth constantly porous. There is a larger quantity of the vitriolic alum. For

the rest, the mountain consists of common sandstone. That even these mines have not been worked carefully is evident from the considerable number of ruined and cold mines.

Below the sulphur mountain on the east side there are three boiling springs; it is evident that the two farthest to the south, and situated close to each other, have been produced by an earthquake, because they are found in a rift in the mountain, and boil with such awful noise, especially the most southern one, that it can be heard 200 yards off, and the ground, which consists of bluish "bolus," is shaken. Close to these hot springs is a large lava-tract, which spreads to the north to a considerable distance; it also winds round the southern point of the mountain, and crosses the path that leads to Fremri-námar, and spreads almost down to Reykjahlíð. The ground is hot everywhere, and the hot vapours rise through the lava, and the whole is therefore continually steaming. About nine miles north of these mines is the mountain Krabla, where excellent mines are said to have been, but when the eruption of 1724 took place, it caused great destruction. One branch of the lava-stream coming from this mountain passed close by the mines on the west side and through the farm of Reykjahlíð, the whole of which was destroyed, and at last the current flowed into the lake Mývatn. The lava thus produced was in various places hollow, as if the uppermost crust had been hardened by the air, and the still liquid lava which was under it flowed away. As the outmost crust cooled down by degrees, it contracted, and thus rifts were formed; in some places also it was not strong enough to support its own weight, and fell down. Crawling into these caves, I found a kind of salt which had been sublimated from the earth, and become fixed there. It had a bitter taste, and after being dissolved and dried again it formed square crystals, with a square point. It was easily melted by the blow-pipe.

Theystarreykja Mines.

The 31st of August I came to the Theystarreykja mines, which are about two miles from the refinery. A large quantity of sulphur is said to have been brought from these mines to the refinery, as they were very important ones, but now they are

almost all cold, and it is only in a few of them that sufficient heat is found. Therefore, although four years are said to have passed since sulphur was taken herefrom, there are only four or five where it might be taken again. Nevertheless the heat seems in some of the cold mines to be breaking through so far that the vitriolic acid can be sublimated through the ground, as it has in combination with the dissolved lime formed the above-mentioned vitriolic salt. It is therefore to be hoped that many of these ruined mines may recover after a time, yet this is not certain. Here is again a clear instance of how the very best mines may be ruined in a short time by careless treatment. If, therefore, the still remaining mines, either here or in other places, are to be preserved, the peasants must be prevented from digging the sulphur.

The home-field of Theystarreykir is good though small, and has a fine situation; and to the north there is a large piece of uncultivated ground which might be made useful. Close to the farm is a hill called Bæarfell, where some of the mines are situated. It begins on the south side of the most southern mines, and continues in a northerly direction, then it takes a turn to the east and then again to the north. In the corner between the eastern and southern arms of the Bæarfell the best mines are found at present. There have been a great number of mines on the west side of the mountain, but these are now cold, except a few in the middle, where the earth is tolerably loose, and the heat can therefore sublimate the sulphur. Those, however, that are on the east side of the hill are quite cold, except two small ones high up in the hill, but there is sufficient heat in all these mines; and I am therefore of opinion that sulphur may be sublimated in them for the future. Some of the western ones are also found to be considerably hot, and it may therefore be expected that these ruined mines may recover in time. On the west side of these mines there is a large tract of lava. On the north side of the Bæarfell the home-field begins, and north of that again a piece of uncultivated ground; when beyond that, the lava reappears and takes an easterly turn. On the top of the Bæarfell there is a great deal of red "bolus," and a strong heat under it. But sulphur is never sublimated with or through

the red "bolus," therefore it is not found here. Very little of gypsum is found in these mines. The warm springs are neither deep nor very hot, and the minerals are either sandstone, or hardened like those at Krísuvík.

All the sulphur mines which I visited in the north are in the following condition: *Fremri-námar* bad, because all the sulphur was taken away last year. *Hlíðar-námar* good, because they have been saved the most. *Theystarreykja-námar* are worst, because the largest quantity has been taken from them. My advice is, therefore, to let *Fremri-námar* and *Theystarreykja-námar* rest for some time, and to work the *Hlíðar-námar* only. When these have been emptied, the former two may be worked in their turn.

The Refining of the Sulphur.

The refinery is situated a few hundred paces from the factory of Húsavík, and consists of a sulphur hut; two store-houses, one for the raw sulphur, the other for the melted, or refined ore; a dwelling-house, with kitchen and outhouses, all built of turf according to the Icelandic fashion. The hut is about 20 feet long and 12 to 14 feet broad. In the middle of it is a small chimney, and on both sides of it two iron boilers are walled in; one is quite small, and holds only 1 cwt. of melted sulphur, the other holds 3 cwts.; the smaller one is very little used. Above the boiler a small board is inserted in the chimney, which reaches over the middle of the boiler; it has a hole at one end, through which a stick is put to stir up the sulphur; when its lowermost end reaches the bottom of the boiler, the uppermost is supported by the board, and he who stirs the sulphur can therefore move the stick more easily than if its upper end were loose. The other instruments are, an iron spade with holes, which is used for taking off the impurities floating on the molten sulphur. Then there are some wooden forms, into which the molten sulphur is poured. They are made of oak planks 3 inches thick, 12 inches broad, and 3 feet long. On one side of the two outermost planks, and on both sides of the two middle ones, three cylinder-shaped grooves are made, so that every half-cylinder groove of the two outermost corresponds with those on the middle ones,

and those on the middle ones with each other. The planks are laid one on the top of the other, and kept together with an iron ring; in such a form nine bars can be made at the same time. A small iron sieve with narrow holes is put in the top of each hole, through which the sulphur is sifted when poured out from the boiler with a large iron ladle. When not used the forms are put into a tank filled with water, in order that the hot sulphur may not stick to the sides of the holes. This is completely prevented by soaking the forms in water. These are all the instruments used in the refining of the sulphur. The fuel used is some little wood sent by the Government, and for the rest peat, of which there is a good supply close by.

When the sulphur is to be purified, a slow fire is made under the boiler, and when it grows hot a small quantity, about two pounds, of raw sulphur is put in; this is stirred till it becomes hot; the fire must be slow, in order not to burn the sulphur, which might easily happen on account of the quantity of earth mixed with it. When the portion is quite dry and begins to melt, a little train-oil is poured in and stirred quickly, by which the earth unites with the oil, and floats on the top. As soon as this is melted, another portion of raw sulphur is put in; and when this is melted, another portion of oil, if required: this is easily seen; if the earth absorbed by the oil falls to pieces like ashes, it falls again into the sulphur, and oil must be poured in immediately. Thus the work is continued until the boiler is full. When the boiler is nearly filled with molten sulphur, a quantity of train-oil is poured on the top of it, and heated sufficiently. Then the fire is removed and the stirring discontinued. The impurities absorbed by the oil are removed with the iron spade described above. The forms are taken out of the water, put together, and raised on one end. The iron sieve described above is placed over the first form, and the sulphur poured over it from the boiler. When it is full the sieve is placed over the second one, then over the third, and so on.

SECTION II.

The next account that we have of the Krísuvík diggings will be found in the following extracts from "Travels in the Island of Iceland during the Summer of the Year 1810," by Sir George Steuart Mackenzie, Bart., etc., etc., second edition, 1812.

Pp. 113, 114.—We set out towards the Sulphur Mountain, which is about three miles distant from Krisuvik. At the foot of the mountain was a small bank, composed chiefly of white clay and some sulphur, from all parts of which steam issued. Ascending it, we got upon a ridge immediately above a deep hollow, from which a profusion of vapour arose, and heard a confused noise of boiling and splashing, joined to the roar of steam escaping from narrow crevices in the rock. This hollow, together with the whole side of the mountain opposite, as far up as we could see, was covered with sulphur and clay, chiefly of a white or yellowish colour. Walking over this soft and steaming surface we found to be very hazardous, and we were frequently very uneasy when the vapour concealed us from each other. The day, however, being dry and warm, the surface was not so slippery as to occasion much risk of our falling. The chance of the crust of sulphur breaking, or the clay sinking with us, was great; and we were several times in danger of being much scalded. Mr Bright ran at one time a great hazard, and suffered considerable pain from accidentally plunging one of his legs into the hot clay. From whatever spot the sulphur is removed, steam instantly escapes; and, in many places, the sulphur was so hot that we could scarcely handle it. From the smell we perceived that the steam was mixed with a small quantity of sulphuretted hydrogen gas. When the thermometer was sunk a few inches into the clay it rose generally to within a few degrees of the boiling point. . . .

Pp. 115, 116.—At the foot of the hill, in a hollow formed by a bank of clay and sulphur, steam rushed with great force and noise from among the loose fragments of rock.

Farther up the mountain we met with a spring of cold water, a circumstance little expected in a place like this. As-

ending still higher, we came to a ridge composed entirely of sulphur and clay, joining two summits of the mountain. Here we found a much greater quantity of sulphur than on any other part of the surface we had gone over. It formed a smooth crust from a quarter of an inch to several inches in thickness. The crust was beautifully crystallised, and immediately beneath it we found a quantity of loose granular sulphur, which appeared to be collecting and crystallising as it was sublimed along with the steam. Sometimes we met with clay of different colours, white, red, and blue, under the crust; but we could not examine this place to any depth, as the moment the crust was removed steam came forth, and proved extremely annoying. We found several pieces of wood, which were probably the remains of planks that had been formerly used in collecting the sulphur, small crystals of which partially covered them. There appears to be a constant sublimation of this substance; and were artificial chambers constructed for the reception and condensation of the vapours, much of it might probably be collected. As it is, there is a large quantity on the surface; and, by searching, there is little doubt that great stores may be found. The inconvenience proceeding from the steam issuing on every side, and from the heat, is certainly considerable; but, by proper precautions, neither would be felt so much as to render the collection of the sulphur a matter of any great difficulty. The chief obstacle to working these mines is their distance from a port whence the produce could be shipped. But there are so many horses in the country, whose original price is trifling, and whose maintenance during the summer costs nothing, that the conveyance of sulphur to Reikiavik presents no difficulties which might not probably be surmounted.

Below the ridge on the farther side of this great bed of sulphur we saw a great deal of vapour escaping with much noise.

SECTION III.

Mr Consul Crowe's Report (1871-72) supplies the following notices of mineral prospects in Iceland:

Mineral deposits, showing the presence of copper, iron, lead, and silver, are found in many parts of the island, but either from their poorness or the want of fuel, no attempt has been made to utilise them. Calcareous stone, marbles (?), and feldspath are also found; and large deposits of sulphur likewise exist in some districts, which at different times have been the object of commercial speculation. The sulphur mines at Krisuvik, in the south, are at present worked for foreign account, but, I believe, owing to their partial inaccessibility, and difficulty of transport, without much success.

The right of working sulphur mines at Myvatn, in the northern portion of the island, has recently been conceded by the Danish Government to an Englishman on a fifty years' lease. They were worked some years ago for account of a Copenhagen house, but were abandoned in 1851, since which time they have remained closed. Many causes contributed to this result; the chief of which, doubtless, were, ignorance of the proper method of mining the sulphur, the cost of transport on horseback to the sea-board, and the want of remunerative demand.

Since then these conditions have changed, and there exists no reason why these mines should not be worked profitably. They extend over a large tract of country, and their position is most advantageous, in the midst of a flat country, within an easy distance of Husavik, a convenient shipping port; and, during the many years they have been closed, the deposits must have very greatly accumulated, and should yield abundantly. Indeed, so strong was this conviction in the minds of the natives that they long opposed the leasing except on very onerous terms, although quite unable themselves to work them.

As these mines are now likely to remain in English hands for many years, a short account of their former history may be read with some interest.

They are situated between 65° 20' north latitude and the Arctic Sea, or more definitely speaking, lying in the tract between Myvatn on the east, and Jökulsá (glacier river) on the west.

The right of working them was bought from private owners by the Danish king, Frederick the Second, in 1563, and this

right has ever since been in the possession of the Danish Crown (now the State). During the reign of this king a considerable quantity of sulphur was extracted, amounting to as much as 400 tons annually. In the reign of his son and successor, Christian the Fourth, the produce appears to have fallen off, and his Majesty was unsuccessful in his endeavours to lease them to foreigners. To the falling-off of their supply of sulphur in this reign, and the consequent scarcity of gunpowder, the Danes attribute their defeat by the Swedes in Holstein (1644).

In 1665 we are informed that the Crown granted a concession for "digging sulphur" to a foreigner, who is stated to have exported large quantities up to the year 1676; since which date no special mention appears to have been made of them until the early part of the eighteenth century, when two foreigners, apparently Germans, acquired in 1724 the right of exporting sulphur from Iceland. They also shipped considerable quantities during the succeeding five years, when the death of the lessees put a stop to this commerce.

After this date, and up to the beginning of the present century, the Danish Government worked the mines for their own account, at times, it appears, with considerable profit, until 1806, when they were again leased to a foreigner. Subsequently, they have at times been worked by private speculators up to 1851, since which date, as already mentioned, they have remained untouched.

In 1840 they were visited by some scientific travellers, who calculated that these northern mines might easily yield an annual net profit of £1000 or £1200. Ten years later they were specially examined by a Danish mineralogist, who discredited this statement, and reported them to be less valuable;¹ but in speaking of the Krisuvik mines in the south, he says, "These might be easily made to yield 200 tons annually," and yet they have always been considered inferior to the northern mines. A French geologist, Eugène Robert, who visited Iceland in 1835, and afterwards published a treatise on its geology, calls the

¹ In Chapter XIV. I have given the reasons why the Mývatn mines were not recommended by the Danish engineers.—R. F. B.

attention of the Danes to the value of the Myvatn mines, and advises them not to lease them to the Englishmen (who were then applying for them), as the property might become of great consequence in the event of the sulphur mines of Sicily falling off, of which, he affirmed, symptoms had shown themselves.

It will thus be seen that opinions are divided as to the productiveness and present richness of these mines; but so much is certain, that they have for several centuries been worked at intervals with varying results; at times with considerable profit: the history of the country, and the experience of so many years, point to the conclusion that, if properly worked, they would become valuable property.

The mines, for instance, at Reykjahlidar-námar are the richest to be found in all Iceland, and produce large quantities of the purest sulphur.

The reproduction is incessantly going on from upwards of a thousand small eminences, called solfataras, which are found on the ridge along the sides and at the foot of Námarfjall. Rich sulphur deposits are also found at the Ketill Crater (called Fremri-námar), while the least rich are the Krafla-námar, but at all these there is a continual deposition of sulphur going on. They all have the great advantage of lying in the track of one of the few practicable roads in the island, leading to an accessible shipping port.

SECTION IV.

HÔTEL DE LA VILLE (AU TROISIÈME), TRIESTE,
16th February 1873.

The following are the notes which I made, for the use of Mr Lock, upon Mr Vincent's able and instructive paper.

"Holding sulphur-export to be the most legitimate trade in which Iceland can engage, I rejoice to see the paper by Mr C. W. Vincent, F.C.E.

"The writer's theory upon the formation of the mineral, by the by, the action of water upon pyrites, is not new, nor am I certain that it is true: perhaps it may be provisionally

accepted, until we have a better. He has done good service to students by noticing the similarity of the Icelandic diggings with those of Central Sicily and of the Yellowstone River sources. On the other hand, after actual inspection of the Icelandic sulphur mines, I must differ upon many details with Mr Vincent, who has derived his information from hearsay. He nowhere notices the interesting combination of the Palagonitic groundwork of the island with lavas of modern date, which seems to me a constant feature of these solfataras. The venerable Sir Henry Holland recorded in 1810, that the Krísuvík formation occupied high ground 'composed principally of the conglomerate or volcanic tufa which has before been noticed:' this palpable reference to Palagonite has not been worked out as it deserved to be. The 'vivid word-pictures' of older travellers are either written in the fine style of former days, or the subjects of description have lost youth and vigour. The 'tremendous proofs of what is going on beneath us' are now, or have become, phenomena on a very mild scale; while the 'thundering noises' which 'stunned the ears' of a former generation, have learned to 'roar gently,' and to avoid shaking weak nerves.

"As regards the authorities quoted, I may notice Commander (now Admiral Sir) J. E. Commerell, who in the Vincent lecture appears enthusiastic upon the capabilities of the Krísuvík mines. But that able officer's more dubious views do not come forth: he expressly states in the same report that 'a tramway might also be laid down; but, as there are two hills to cross, with other difficulties, I could not positively state whether this were possible or not.' Mr Seymour (*fil's*) has spent many months in Iceland, but that does not mean Krísuvík. Captain Forbes is also quoted, although it is well known that my friend has not a high opinion of the south-western solfatara, and the sketch of travel over that part of Iceland given in his lively volume (p. 103) suggests anything but facility of transit. When a tramway has to cross a hill-range, and a lava-tract some twelve indirect miles broad, we already expect difficulties. Here, however, I must confess not to have seen the plan and estimates drawn up by Messrs Shields and Gale, who set out for Krísuvík a few days before my departure from Iceland.

“Also Mr Vincent appears to extend the solfatara district of Krísuvík over a space of twenty-five miles, along a fancied volcanic diagonal. This may be the case, but on July 9-10 Mr Chapman and I rode from ‘Krísa’s Bay’ eastward to the Reykir, *alias* the ‘Little Geysir,’ and, although we looked curiously for the enormous area theoretically assigned to the sulphur formation, we failed to see any sign of it. Our path ran over the normal quaking bogs, over large spills of modern lava poured down the walls of the high interior plateau, and occasionally over a strip of sea-sand. The apparently indispensable Palagonite was also missing till near the end of the second march. Gunnlaugsson’s and Olsen’s large map of Iceland, hereabouts so minute in all its details, does not show a single hot spring between Krísuvík and Reykir; on the contrary, all is coloured red-yellow, as a Hraun (lava-tract). Even the ‘western mine’ of Krísuvík has been described to me by authorities who know the country well, as containing very little sulphur; and a passing visit induces me to believe them.

“All these are minor objections to Mr Vincent’s paper. But when speaking of, or rather alluding to, your concession, he has fallen into grievous error. If he has studied the subject, he simply misrepresents it; if not, he should have avoided all depreciatory notice of the Mý-vatn mines.

“And now for the proofs.

“I read (p. 137) with unpleasant surprise, ‘a violent eruption of the mud-volcano Krabla to a great extent buried the then active strata beneath enormous masses of volcanic mud and ashes, so that the energy has been probably transferred along the line’ (viz., the great volcanic diagonal stretching, or supposed to stretch, from Cape Reykjanes to the Mý-vatn lake) ‘southwards,’ that is to say, to Krísuvík.

“Without dwelling upon the fact that Mr Vincent’s theory about the local production of sulphur renders such ‘transfer of energy’ impossible, I remark that, firstly, the Hlíðarnámar, the nearest deposits of the Mý-vatn sulphur, are at least two miles removed from the extremest influence of Krafla, whilst the Fremrinámar are four times that distance, and the latter are situated upon a much higher plane. To those who have breathed

the live sulphur tainting the air for mile after mile, this 'transfer of energy' becomes a mere matter of fancy. Secondly, on the very flank of Krafla, the hollow called Great Hell (Helvíti Stærra) shows an abundance of sulphur, which extends right across the valley westwards to Leirhnúkr (mud knoll). In this small section of your concession Gunnlaugsson gives no less than seven Hverar (boiling springs) lying close together. I need hardly pursue this part of the subject: to one who has seen the country the assertion that any eruption from Krafla has effected either the Hlíðar or the Fremri diggings appears inconceivable. Suffice it to say that your six square miles of live sulphur contrast wonderfully well with the two at the south-western end of the island. Krafla alone contains as many solfataras, boiling springs, and 'makkalubers' (mud caldrons), as exist in the whole district of Krísuvík, and Krafla is only a part, a very small part also, of the north-eastern deposits.

"Again I see with astonishment (p. 143), that 'the sulphur at Myvatn, though great in quantity, is at too great a distance from the port of embarkation to permit its extraction being carried on with any chance of competing with that from the Krísuvík mines.'

"It is true that your concession lies some twenty-five direct geographical miles from Húsavík, the nearest available port, whilst those of Krísuvík are only ten distant from Hafnafjörð. But a simple statement of this kind is fallacious, because it conveys the wrong impression. It is known to every Icelander that the northern line is one of the best, the southern one of the worst, if not the worst, in the island. The Húsavík road has the immense advantage of an easy and regular incline from 900 feet high to sea-level, and in the depths of a protracted winter your sledges can always carry down the material dug up during the long summer days. There is nothing to prevent your having your tramway, when such expensive article becomes advisable.

"You are at liberty to make any use you please of these short and hurried notes. Pray understand that my object is by no means to disparage the sulphur mines of Krísuvík; on the contrary, I hope soon to see a company formed, and a stout-hearted attempt made to benefit both the island and ourselves. M. Robert's

opinion upon the capability of Iceland generally to supply an article which every year grows in request, and his truly Gallican horror of the trade falling into English hands, are too well known, and have too often been quoted, to justify repetition. But I can truthfully say, that the Mý-vatn concession will be found preferable to that of Krísuvík, and I regret that Mr Vincent has adopted, without personal acquaintance with Iceland, information which seems to come from suspected sources.

“Why do you not render justice to the Mý-vatn mines by a lecture, with the assistance of maps, plans, and other requisites? Mr Vincent, I see, proposes to continue writing upon the highly interesting sulphur supply of Iceland: pray remember that in these wild solitudes I am wholly dependent upon the piety of my friends and the pity of those who remember me.

“Ever yours truly,

“RICHARD F. BURTON, F.R.G.S.

“Alfred G. Lock, Esq.”

SECTION V.

SULPHUR IN ICELAND. By C. CARTER BLAKE, Doc. Sci., Hon. For. Sec. Lond. Anth. Soc. London: E. & F. N. Spon, 48 Charing Cross. 1873.

The fact that sulphur, one of the most useful substances known, and, in the words of Mr Crookes, “the mainstay of present industrial chemistry,” has been an article of commerce throughout all time, and that a ready market has always existed for it, is familiar to all. Like the famous electrum of the ancients, its origin has been comparatively unknown. We shall briefly consider the conditions under which sulphur is found; its geographical distribution over the face of the globe; the method of its preparation for the market, and the circumstances which may lead capitalists to seek for the productive mineral at a shorter distance from our own shores than the Mediterranean or Mexico.

Sulphur is a simple, inflammable, brittle substance, of which all the forms found native belong to the rhombic or trimetric system, and are more or less modified rhombic pyramids. These crystals could not be formed at temperatures approaching that of boiling water, or be exposed to such a temperature without alteration; crystals of native sulphur must therefore have been formed at ordinary temperatures. Sulphur does not occur anywhere in sufficient quantity to constitute a rock, but is widely disseminated throughout rocks of different ages, either implanted in crystals, in small beds, nests and nodules in a pulverulent condition, as a coating, as in some lavas, or as a cement of decomposed trachyte. Dr Sullivan has said: ¹

“In volcanic regions the deposition of sulphur may result from two causes: 1st, the action of oxygen on damp sulphide of hydrogen gas, or on solutions of the gas; and 2d, the mutual decomposition of sulphide of hydrogen, H_2S , and sulphurous anhydride, S_2O . If the former be in excess, water and sulphur appear to be formed; if the latter be in excess, pentathionic acid, $H_2S_5O_6$, and water are formed; the pentathionic acid is gradually decomposed into sulphur and sulphuric acid, which produce sulphates. In connection with this reaction, it may be observed that several sulphates are associated with the sulphur found in districts where the sulphur is formed from gases escaping through fissures. Old craters having such active fissures called fumaroles, are termed solfaterras.”

So important an influence does the price of sulphur exercise upon the cost of production of bleached and printed cotton stuffs, soap, glass, and other valuable manufactures of this country,² that it was the express subject of a commercial treaty, and in 1838 the British Government took very decided steps to put an end to a monopoly attempted to be established in it by the Sicilian Government.

That the present supply of sulphur is inadequate to the demand is proved by its high price, by the use of pyrites as a substitute, and by the inquiries recently made by the British Government as to its existence in Mexico. That the already

¹ Jukes and Geikie, *Manual of Geology*, 3d edition, p. 55.

² Liebig's *Familiar Letters on Chemistry*, p. 152.

large demand for this important substance must increase is quite evident when we consider the purposes to which it is applied.

Gunpowder.—Sulphur enters into the composition of this important article in proportions ranging from 10 to 20 per cent., according to whether the powder is required for war, sporting, or blasting purposes.¹ When we consider the vast quantity required by the gigantic armaments now maintained in every civilised country, as well as by the numerous mining and engineering operations at present in existence throughout the world (in which it is indispensable for blasting), we can form some idea of the immense amount of sulphur annually consumed in the manufacture of gunpowder alone.

Sulphuric Acid.—One of the most important chemical agents required in the arts and manufactures, is used very extensively for making soda-ash for bleaching linen, woollens, etc., straw, etc.,² manure making, and for a variety of chemical productions; also for refining metals.³

Soda-ash (alkali) is obtained from common salt by means of concentrated sulphuric acid. It is used instead of barilla for soap-making, as a substitute for pot and pearl ashes in glass-making; for cleaning and bleaching; and, in the form of carbonate, for medicinal and domestic purposes. In the year 1862 the enormous quantity of from 100,000 to 120,000 tons of the former, and from 25,000 to 30,000 tons of the latter, was made in Great Britain alone.⁴ That quantity is now vastly increased.⁵

Manures.—A great consumption of sulphuric acid has of late years taken place for agricultural purposes,⁶ viz., in the preparation of superphosphate of lime, the most active manure for turnips, grass, and cereals.

Oidium.—Within the last few years it has been discovered

¹ Ure's Dict., vol. ii., p. 432.

² Simmond's Dictionary of Trade Products, p. 367; Muspratt's Chemistry, vol. i., p. 320.

³ Liebig's Letters, p. 149.

⁴ Simmond's Dictionary of Trade Products, p. 351.

⁵ See Exports for 1872.

⁶ Liebig's Familiar Letters on Chemistry, p. 150.

that the use of flowers of sulphur, containing traces of sulphuric and sulphurous acid, and of carburetted hydrogen, is a protection against the vine disease—*oidium*. Although no reliable information exists as to the exact quantity used for this purpose, yet it is known to be very considerable.

Flowers of sulphur have recently been strongly recommended as a remedy for the potato disease.¹

Such are a few of the principal objects to which sulphur is devoted, and for which it is needed; thereby proving most conclusively that THE CONSUMPTION IS ONLY LIMITED BY THE SUPPLY.

Sulphur is found in Corfu, the neighbourhood of Rome, Transylvania, Spain, the clear or borax lake in California, the slopes of the Popocatepetl, in the province of Puebla, Mexico; in Montana, North America, and in the Andaman and the Japanese islands. Supply from these sources is practically impossible, and the whole supply of sulphur to Europe and America is derived from the Sicilian sulphur-deposits, the imports of which into this country arose from 16,686 tons in 1842 to 58,204 tons in 1859,² and over 75,000 tons in 1862;³ and in France, from 6668 tons in 1820 to 33,361 tons in 1855.

Sulphur is found either (*a*) in a pure native state, (*b*) as gas, or (*c*) in mechanical admixtures with clays or other earths. The method of extraction of sulphur when mechanically combined with foreign substances is thus described in Richardson and Watts' "Chemical Technology," vol. i., part iii., p. 314:

"It has already been noticed that the deposits of sulphur are always associated with various mineral or earthy matters, and three processes are followed to separate the principal part of these impurities, which generally amount to more than one-half of the entire weight of the deposit.

"When the deposit is rich in sulphur it is melted in a cast-iron pot, heated by an open fire. The melted mass is stirred with an iron rake to facilitate the separation of the earthy

¹ See Smee's My Garden.

² Richardson and Watts' Chem. Tech., 2d edit., 1863, vol. i., part iii., pp. 2 and 3. This old calcarelle furnace has been greatly improved. It must not be described as a "blast-furnace."

³ Simmond's Dict. Trade Products, 1863, art. "Sulphur."

matters, which are allowed to fall to the bottom. The liquid sulphur is then removed by a ladle, thrown into an iron vessel, and allowed to solidify. The temperature ought to vary between 250° and 300° Fahr., and never reach 480°, at which point the sulphur would take fire. The residue which remains, and contains more or less sulphur, is removed, and may be treated by either of the following plans :

“ A small blast furnace, constructed of fire-brick or stone, is charged with the sulphur-stone at the bottom, which is ignited, and fresh charges of the sulphur-stone are thrown in from time to time. The working holes at the sides admit a small supply of air to support combustion on the surface, by which means sufficient heat is generated to melt the sulphur, which runs off at the bottom through a pipe into an iron pot, where it solidifies.

“ The third plan is suitable for treating the impure sulphur-stone, containing from 8 to 12 per cent. of sulphur. It consists of a furnace sufficiently wide to receive two rows of earthen pots—the vessels for distillation—which are arranged in pairs somewhat raised above the sole of the furnace, upon the supports so that the necks of the pots are a little above the top of the furnace. Thus the mouths of the pots are free, and having been charged from without, they are closed by the lids, cemented on, and the distillation begins. The sulphur vapours pass over by the lateral tubes to the receivers, where they condense to liquid sulphur, which flows through into a vessel filled with water, and there solidifies.”

We have indicated the three conditions under which sulphur is found. The sulphur in a gaseous state in Iceland, where, besides the large and rapid deposit of the sulphur in and upon the ground, an immense quantity escapes in the sulphureous vapour, is now entirely wasted, but with the adoption of the improved Mexican process an enormous saving would result. Now the whole of this may be recovered by condensing these vapours in clay vessels, a method practised with great success in Mexico, where in certain places the fumes escape from the soil and can be utilised only in this manner. The sulphur thus obtained is required at the mint of the city of Mexico and at the assaying works.

Sulphur is an essential product of volcanic action : now Iceland is *par excellence* the spot of the world where volcanic action is at its maximum, and Iceland, as a consequence, is the spot where sulphur is found most extensively. The districts round the active volcanoes of Etna, in Sicily, and Vesuvius, near Naples, supply the whole amount of sulphur now used. In seeking, then, for a new source of this commodity, we should naturally turn our attention to a volcanic district. And where in the whole world does there exist another country so pre-eminently volcanic as *Iceland*? Its fearful lava-tracts, its vast plains of scoriæ, volcanic dust and ashes, its pools of boiling water, its spouting geysirs, its vast caldrons of seething mud, proclaim its volcanic origin. It owes its upheaval wholly to volcanic agency, and is composed almost entirely of igneous rocks.

While these pages are passing through the press, the volcanic force has broken out in Iceland, and Skaptar Jökull burst into eruption for four days in the month of January last.

The wildest theories have been uttered respecting the modes of origin of sulphur. An inquirer, who investigated the southern Icelandic mines in a superficial manner, has thrown out a theory that the sulphur derived from Krísuvík, and other southern localities, has been produced by the action of water on the sulphurets of iron contained in the rocks. This idea, which rivalled some of the speculations of De Luc, was expressed by him in a paper read before the Society of Arts, on the 15th January 1873. The notion was, that the hidden fires of Iceland dwell in the crust of the earth, and not in its interior; that the boiling springs and mud-caldrons certainly do not derive their heat from the depths of our globe, but that the fire which nourishes them is to be found frequently at only a few feet below the surface, in fermenting matters which are deposited in certain strata! How far this theory is probable may be estimated when we glance at the converse hypothesis, which we must impress upon our readers. The lava at Myvatn is only a few feet, or at most, a few yards, thick; this is clearly shown by the fact that the gaseous vapour escapes from innumerable holes in the lava lying between the mines and the lake. The stoppage of an outlet for

the upward flow of the gas has caused the outbreak of the fluid at spots far distant from the original central "crater" of the sulphur volcano. The geology of Mr Vincent is decidedly vague.

That a great volcanic diagonal line stretches from Cape Reykjanes to the lake of Myvatn, is a theory which is unproven by topographical science, and which a glance at the map, which shows the elevated hills of Lángjökull, Hofsjökull, and Vatnajökull extending across this imaginary line, is sufficient to disprove. The relative elevations of the mountains, from Snæfell on the east, to Eyjafjallajökull on the west, seem to indicate that the central line of volcanic action has been along a line parallel with the south-south-east coast, and which has left the formations in the neighbourhood of Lake Myvatn, with the small volcanic chain of Sellandafjall, Bláfjall, Hvannfell, and Búrfell, entirely to the north. The abrupt escarpment of the greater chain lies along its south-eastern strike, and the fissures along which the parallel rivers from the Jökuldalur to the Hrútafjörðará flow are, according to a well-known geological law, produced on the less inclined slopes. Whilst Mr Vincent's theoretical geology verges on the speculative, his assertion of known geographical facts is inexact.

In 1857, when the temporary cessation of war by England led the British Government to look for fresh sources of gunpowder supply for Europe, Captain J. E. Commerell, of H.M.S. "Snake," was sent to Iceland by the Lords Commissioners of the Admiralty to report upon the capabilities of the mines of Krísuvík and Húsavík. He found the Krísuvík mines, though comparatively close to the sea, did not possess a safe port of debarkation nearer than Hafnarfjörður. An *ex parte* statement of the "objects, pleasures, and advantages" of the "truly eligible" Krísuvík sulphur mines leaves itself open to severe criticism, and the opinion of Commander Commerell that "the sulphur at Myvatn, though great in quantity, is at too great a distance from a port of embarkation to permit its extraction being carried on with any chance of competing with that from the Krísuvík mines," may be profitably contrasted with that of A. de Capel Crowe, Esq., H.B.M.'s Consul in Copenhagen.¹

¹ Quoted *in extenso*, Appendix, Section III.

Consul Crowe's remarks as to the richness of these deposits are corroborated by Commander Commerell himself, who says in his report :

" I found at Námarsfjall, which lies about six miles to the east of Lake Myvatn, large beds of sulphur in a very pure state ; and though the quantities already deposited were very great, no signs appeared of their having been worked."

We shall give the testimony of a few of the more distinguished Icelandic travellers relating to the value of the Myvatn fields. But quotations are only made from authors whose scientific and literary position render their opinion of value and authority.

The testimony of the Rev. Mr Henderson, the celebrated missionary in Iceland, cites the following notorious and well-known facts :

" To the east of Krabla the sulphur mines of Reykjahlid.¹

" Of the sulphur mountains a particular description is given in the journal.²

" . . . Several huge dark mountains that are again relieved in the east by the Námars, or sulphur mountains, from the decomposition going forward, in which a vast profusion of smoke is constantly forming, ascending to a great height in the atmosphere.³

" Olafsen and Povelsen, describing two pools on the south-east side of Krabla, say that the whole region completely answers to the well-known solfatara in Italy."⁴

Describing the neighbourhood of Myvatn, he, in an eloquent description, says :

" On either side lay vast beds of sulphur covered with a thin crust, containing innumerable small holes, through which the vapour was making its escape. In many parts the crust, which presented the most beautiful aluminous efflorescence, was not more than half-an-inch in thickness ; and on its being removed, a thick bed of pure sulphur appeared, through which the steam issued with a hissing noise. The sublimation of the sulphur is produced by the constant ascension of this vapour ; and it is

¹ Henderson's Iceland, 1818, Introduction, p. 4.

³ *Ibid.*, vol. i., p. 160.

² *Ibid.*, p. 7.

⁴ *Ibid.*, p. 176.

found to possess greater and less degrees of purity, in proportion as the soil is more or less porous. In general, however, *these mines are VASTLY superior to any other in Iceland*, owing to the intense degree of subterranean heat, and the very loose and porous nature of the earth at this place.

“The sulphur mountain rises to a considerable height from the east side of the hollow in which these mines are situate. It does not exceed a mile in breadth, but is more than five miles in length, stretching from the east end of the lake in a northerly direction, between the volcanoes *Krabla* and *Leirhnukr*, where it joins the ridge by which these two mountains are connected. The surface is very uneven, consisting of immense banks of red bolus and sulphur, the crust of which is variegated with random mixtures of yellow, light-blue, and white colours, and in some places a soft sandstone makes its appearance through the predominant mould. I could also observe holes, out of which the sulphur has been dug by the peasants.

“The jetting is accompanied with a harsh roar, and the escape of a vast quantity of vapour strongly impregnated with sulphur. . . . Passing a desolate farm, and keeping at a distance from the sulphur banks, which appeared in the face of a contiguous mountain, we succeeded in reaching the base of *Krabla*. . . . On the northern margin rose a bank, consisting of red bolus and sulphur, from which, as the wind blew from the same quarter, we had a fine view of the whole. Nearly about the centre of the pool is the aperture whence the vast body of water, sulphur, and bluish-black bolus is thrown up; and which is equal in diameter to the column of water ejected by the *Great Geyser* at its strongest eruptions. . . . What was visible of *Krabla* appeared covered with the same clay, pumice, and sand as that on which I stood, only diversified by beds of yellow sulphur. . . . To the west of this wilderness lay a number of low mountains, where the *Fremri Námur* are situated. Directly in front was the valley filled with lava above described; near the farther end of which the large columns of smoke ascending from the sulphur springs had a fine effect.”¹

¹ Henderson's *Iceland*, 1818, vol. i., pp. 166, 167, 170, 171, 173, 174, 177.

The Rev. S. Baring-Gould, whose researches into Icelandic literature have been of such service to the philologist, gives the following description of the view from the slope above Reykjalíð, looking across the Lake Myvatn :

“ You see the indigo chain of Blafell, beyond which is a *field of sulphur* and boiling mud called Fremri-Námar, not visited by travellers, as it is difficult of access, and inferior in interest to the Námarfjall springs. . . . (From Námarfjall) in half an hour we reach the sulphur mountains, a chain of red hills, perfectly destitute of vegetation. We dip into a glen, and find it full of fumaroles, from which steam is puffing, and sulphur is being deposited. These run along the dale in a zigzag. By the road-side I noticed a block of pure sulphur, from which every traveller breaks a piece, so that in time it will disappear altogether.

“ Passing through the Námar-skarth, a winding cleft in the mountains, I came upon a plain of mud, the wash from the hills bounded by a lava-field; the mountains steaming to their very tops, and depositing sulphur, the primrose hue of which gives extraordinary brightness to the landscape. . . . Presently the beautiful Lake Myvatn, or Midge Lake, opened before us, studded with countless lava islets; beyond was the sulphur range, yellow as though the sun ever shone on it.”¹

In Mr Shepherd's work on the North-West Peninsula of Iceland, we find another lucid description :

“ We rode to the sulphur mountains on the east of the lake (Myvatn). These large hills are a very wonderful sight. They are of various colours, a variety of mixtures of red and yellow. From their sides are emitted various jets of steam, and *masses of bright yellow sulphur* are strewn all around them. . . . All around the soil was very treacherous, consisting of hot mud, with a covering of sulphur about an inch in thickness, which in most cases was sufficiently strong to bear a man's weight. When the crust was broken, steam issued forth, strongly impregnated with sulphur.”²

The distinguished Lord Dufferin (the present Governor-General

¹ S. Baring-Gould's *Iceland*, 1863.

² Shepherd's *North-West Peninsula of Iceland*, 1867, p. 157.

of Canada) in his charming book, "Letters from High Latitudes," says :

"Opal, calcedony, amethyst, malachite, obsidian, agate, and felspar are the principal minerals; OF SULPHUR THE SUPPLY IS INEXHAUSTIBLE."

M'Culloch's "Geographical Dictionary," vol. i, p. 585, under the heading "Iceland," says :

"Few metals are met with. Iron and copper have been found, but the mines are not wrought. THE SUPPLY OF SULPHUR IS INEXHAUSTIBLE; large mountains are encrusted with this substance, which, when removed, is again formed in crystals by the agency of the hot steam from below. Large quantities were formerly shipped; but latterly the supplies sent to the foreign market were comparatively small."

"Chambers's Encyclopædia," under the heading "Iceland," vol. v., p. 505, says :

"The mineral wealth of Iceland has only begun to be developed. IN NO PART OF THE WORLD IS SULPHUR FOUND IN SUCH ABUNDANCE."

An adequate idea of the value of the Icelandic sulphur fields, as compared with those of Italy, cannot be conveyed by the reports of travellers. To thoroughly comprehend this, we must bear in mind the reproductive properties displayed by solfataras, and the best means suggested by practice to extract the sulphur and yet not interfere with this peculiarity.

The process for the separation of the sulphur at the celebrated solfatara of Pozzuoli, near Naples, where the sulphur is condensed in considerable quantities amongst the gravel collected in the circle which forms the interior of the crater, is conducted as follows: The mixture of sulphur and gravel is dug up and submitted to distillation to extract the sulphur, and the gravel is returned to its original place, and in the course of about THIRTY years is again so rich in sulphur, as to serve for the same process again.¹

We thus see that the reproductive process occupies a period of THIRTY years in the Italian mines, whereas the same results

¹ Ure's Dict. of Arts, Manufactures, and Mines, 1860, vol. iii., p. 830.

are produced in THREE years in the Icelandic mines, *i.e.*, that A GIVEN AREA IN ICELAND WILL PRODUCE TEN TIMES THE QUANTITY OF SULPHUR, OR IS TEN TIMES AS VALUABLE, AS THE SAME AREA IN ITALY.

"The permanency of the volcano, as a source of sulphur, would depend on the rapidity with which the sulphur would be replaced, after the sand had been once exhausted. The time required for this is not necessarily fixed to periods of twenty-five or thirty years. In Iceland, at a similar spot the sulphur is renewed every two or three years."¹

The nearest port suitable for shipment of the sulphur is "Húsavík," situate in the Bay of Skjálfandi; it is perfectly accessible at all times of the year. Mr Consul Crowe having been questioned on the subject, states² that:

"The Icelandic ports are, owing to the influence of the Gulf Stream, in ordinary years accessible to shipping all the year round, and shipments can safely be made during seven months at ordinary rates of freight and insurance. Húsavík, as a rule, is never frozen up, the only impediment to free navigation being the floating ice which at certain seasons is loosened from Greenland, and may for a time lie off the coast. Such occurrences, however, have their stated times and seasons, which are well known to navigators in those waters; in some years there are no hindrances of the kind at all, and shipments in good vessels may be made all the year round. In support of this statement, I may mention the fact that steamers leave Copenhagen for Iceland as late as the middle or end of October, and would do so later were there sufficient goods or passengers to make them pay. Again, the Iceland 'Althing' have recently proposed to raise funds for running steamers round the island '*all the year*;' and thus supply the want of internal communication; and, if the proposal fell through, it was only on financial grounds, and not from inaccessibility of ports from ice. I am therefore simply repeating facts in stating that, as a rule, Iceland navigation is free all the year round. *The island is but a two days' journey*

¹ Dr F. J. Mouat's Adventures and Researches among the Andaman Islanders, 1863, p. 169.

² Letter of A. de C. Crowe, Esq., 27th June 1872.

from Scotland, and with suitable vessels an almost uninterrupted intercourse might, in ordinary seasons, be kept up. In further confirmation of what I have stated, I may add that this same warm current from the Mexican Gulf, which is so beneficial to Iceland, keeps also all the Norway ports, from the Naze to the North Cape, ice-free all the year round."

The road from Hafnarfjörður to Krísvík will certainly be improved by the formation of a railway.

It has been said by Professor Pajkull that this road is one of seven or eight hours' journey.

"This road is one of the best in Iceland. The 'heiði' south of Húsavík is free from stones, and is level, although only sparsely overgrown with grass. Neither are there any hills or fields to be met with along it, and there are only a few small streams to be crossed. The last few miles north of Myvatn certainly consist of a sandy plain, but it is tolerably level, and the road is pretty good, owing, I suppose, to the sulphur traffic from the solfataras, near Myvatn, to Húsavík, in former days, in which 100 horses are said to have been employed at one time."¹

In 1868, the late foreign minister of the United States, Mr W. H. Seward, one of the most far-sighted statesmen which that country has ever produced, was able to anticipate the future importance of the Iceland sulphur mines both to Europe and to America. It was even proposed that the United States Government should purchase both Iceland and Greenland, as well as St Thomas, from the Danish Government. To promote this object, Mr B. M. Pierce was sent to Iceland to report on the mines. Extracts from his report are subjoined:

"The sulphur mountains, beds, and mines are very rich and extensive, easily worked, and of immense value. The sulphur is supplied at half the cost of that furnished by the Sicilian mines, which it is believed will soon be exhausted. *The possession of these mines as a part of our territory is a question of vital magnitude.*

". . . By the way of Reykjahlid and Krabla, where are the most extensive sulphur deposits of the island.

¹ Pajkull, pp. 217, 244, 245, 246, 247.

“There are two principal fields of sulphur in Iceland; one near Krabla and Reykjahlid in the north-eastern, the other at Krísuvik in the south-western corner. *The former is by far the most extensive region*, but the latter gives the purer product. Every traveller gives us a description, more or less minute, of these sulphur hills, and the beds of pure yellow, often a foot thick, which extend about them. Up to a few years ago the sulphur had only been explored in the rudest way by the natives. The industry thus carried on was almost insignificant in result, and was soon abandoned when the supply of surface material became scanty. Still the exportation of sulphur was enough during the days of the peasant mining to give the brightest hopes of what it would be under enlightened management and economy. One of the most interesting and remarkable facts connected with these mines is that a region apparently exhausted becomes re-sulphurised again, so that the stores of brimstone are PRACTICALLY as INEXHAUSTIBLE as those of the infernal regions. Although the mines of Krísuvik are twenty miles from Hafnarfjörðr, one of the best harbours in the island, and those of Krabla are farther still from the seaboard, and from the principal trading station of Húsavik, it would appear that pure Icelandic sulphur is excessively cheap, half the price, say some, of Sicilian sulphur. *With improved means of transportation it would control the market.* The Oxonian, remarking on this, says (p. 138), ‘like everything else in Iceland, the light is under a bushel.’ Our most trustworthy information comes from Forbes, who, being an officer, sees the importance of the sulphur supply, and enters energetically into a thorough discussion on the prospects of the Iceland beds. We shall give the substance of what he says: ‘The deposits are formed by the decomposition of the sulphurous fumes that burst up from the ground, and afterwards sublimate as solid sulphur. A part is mixed with clay; a part is almost pure sulphur, containing but 4 per cent. of gangue. The number and energy of these sulphur gases continually coming up is incredible. The sulphur earth, or impregnated clay, averages from 6 feet to 3 feet in thickness, and contains 50 or 60 per cent. of pure sulphur.’

“Sulphur is found also at Námafjall, in the north of Iceland,

in geological circumstances analogous to those of the beds at Krísvík. It is found there generally in concrete masses of a citron-yellow colour, quite pure, sometimes very plentiful, and generally associated with lime and silica. It is to be regretted that the Danish Government does not favour this industry, which would furnish as fine sulphur as that of Sicily, and doubtless at a lower price. Besides, Denmark possesses in Iceland immense stores, which will one day be of great value to her when those of Sicily are exhausted."

Before the concession was granted to Mr Lock, Professor Johnstrüp was sent by the Danish Government to survey and make plans of the mines. His report is inserted at length :

" Referring to the consul's request to me in date of the 27th of last month, I beg to inform him that on the journey which I made last year to Iceland I visited the sulphur mines belonging to the State there, which lie to the east of Myvatn, and I made maps of them, which were sent to the Minister of Justice, who will, no doubt, let you have copies of them. From these you will be able to see that the richest mines are to be found in that part called Reykjahlidar-Námar, where large deposits of the purest sulphur are to be found.

" The reproduction is *incessantly* going on from about a thousand small eminences (*solfataras*), which are found on the ridge, along the sides, and at the foot of Námarfjall.

" Further rich sulphur mines are to be found at the Kéttill crater, called the Fremri-Námar, while the least rich mines are the so-called Krabla-Námar, but also at these there is a continual production of sulphur going on. The first-mentioned mines ARE THE RICHEST TO BE FOUND IN THE WHOLE OF ICELAND, and have the advantage of lying in the *track of a PRACTICABLE ROAD to the shipping port of HÚSAVIK*, WHICH ROAD IS AMONG THE BEST IN THE ISLAND. As regards the position of the mines, I must refer you to Olsen and Gunnlaugsson's map of Iceland, on which they are marked. It will be a pleasure to me should these particulars be of service to you.

" (Signed) J. F. JOHNSTRÜP,

" *Prof. Mineralogy at the Copenhagen University.*

" *April 30, 1872.*"

The examination of these facts is quite enough to show the inquirer that the transit from Myvatn to Húsavík is more practical, and of more easy access, than that from Krísuvík to any of the ports at the south-west corner of the island, which have been extolled by Mr Vincent in his *ex parte* glorification of the Krísuvík mines. We will now turn to the testimony of a far greater traveller, whose opinion on the subject ought, indeed, to be regarded as final. Captain R. F. Burton, in his recent exploration of Iceland, devoted much time to the examination of the Myvatn sulphur deposits. The great question is answered by him in the following letter which appeared in the *London Standard*, Nov. 1, 1872:

“Sir,—Perhaps you will allow me, in continuation of my letter of October the 14th, to attack the subject of the sulphur deposits in Iceland now belonging to British subjects.

“For many years these diggings, so valuable since the exhaustion of the supply from Sicily, were a bone of contention between France and England. . . .

“Denmark can hardly work the mines for herself without a great expenditure of capital, which will find its way into Icelandic pockets, and thus she wisely leases her property to strangers. She relies upon the fact that sulphur has risen from £4, 10s. to £7 per ton, and consequently that her Iceland diggings must become more valuable every year.

“I spent three days—from August 7th to August 9th, 1872—at the solfataras of Myvatn, or Midge Lake, situated to the north-east of the island. I lodged at the farm of Reykjahlfið (reeky ledge), under the roof of the well-known Hr Pétur Jónsson, whose alacrity in composing a bill of charges has won for him a wide reputation.

“On Wednesday, August 7th, I set out under the guidance of this worthy to inspect the diggings of Krafla, generally but erroneously written Krabla. And now a verbatim extract from my diary will assure the reader that my statements are completely free from the process called ‘cooking.’

“Rode to Leirhnúkr (mud knoll) in one hour fifteen minutes. At once understood an *emplacement* very imperfectly described by old travellers. It is the northern head of a spine, a sharp prism

about one mile broad, with a magnetic direction of 215 deg., in fact, nearly due north—south. It is a mass of Palagonite (sea-sand forming a stone), everywhere capped by spills and gushes of modern lava, and sulphur abounds at the junction of these formations. The hillock of *Leirhnúkr* is one vast mass of sulphurous deposits. I counted seven wells upon the slope, whilst the lowlands around were spotted with unwholesome-looking eruptions. Rode east to Helvíti, which the Rev. Mr Henderson described in 1815 as a crater, not unworthy of its grim name. ‘Hell,’ here as elsewhere, has been ‘dismissed with costs,’ the placid blue lake, ruffled at times by the passing breeze, and blowing off odours the reverse of Sabæan, is now hardly worth visiting. At Hrafnatinnuhryggr (raven stone ridge)—excuse the word, I did not make it—expected to find, as the ‘Obsidian Mountain’ has been described, ‘a heap of broken wine bottles shining with their jet-like colouring.’ Found nothing of the kind, but picked up some decent specimens. Rode back much edified, etc., etc. . . .

“On the next day rode to the Fremrinámar (outer warm-springs) to the south with some easting to Reykjahlíð. Found the road utterly dissimilar to anything laid down in maps. After four hours thirty minutes of rough travelling, reached the deposit which has been worked for some generations, but which cannot be said to have been EVEN SCRATCHED. The ‘lay’ is upon the north-eastern, the eastern, and the southern flank of a crater, described by the late Professor Paijkull as ‘probably the largest in Iceland.’ Immense deposits covered the ground, and white fumes everywhere filled the air. Whole torrents of what Mr Crookes calls the ‘mainstay of our present industrial chemistry’—I mean sulphur—have here been ejected. Could not count the hissing ‘hot coppers,’ popularly called fumaroles. Returned after a stiff ride of eight hours thirty minutes, which gave a fine view of the Ódáða Hraun, the ‘great and terrible wilderness’ of lava to the south-west, etc. . . .

“August 9th was a lazy day, spent in preparing for a trip to the desert. Inspected the Hlíðarnámar (ledge springs), from which the farm of Reykjahlíð takes its name. Bravely objected to be deterred by the ‘smell of rotten eggs,’ by the ‘suffocating fumes,’

and by the chance of being 'snatched from yawning abysses by the guide's stalwart arms.' Perhaps the conviction that the abyss nowhere exceeds three feet in depth may account for my exceptional calmness in such deadly peril. The Hlíðarnámar, or Ledge Springs, lie west of the sulphur mountain, and on a lower plane than the eastern deposits. They are bounded north by two lava-streams issuing from the base of the Hlíðarfjall, and south by independent outbreaks of lava, showing hosts of small detached craters. East is the hill, and west the Mý-vatn water, and its selvage of fire-stone. The area of this fragment of the grand solfatara may be one square mile.

"The spade deftly wielded threw up in many places pure flowers of sulphur. According to Dr Augustus Vöelcker, this bright yellow matter gives 95.68 per cent., and according to the Icelandic traveller Ólafsson, it is readily renewed. Below the golden colour usually is a white layer, soft, acid, and mixed with alum; it is calculated to yield 20 to 30 per cent. Under it again are the red, the dark purple, the chocolate, and other tints, produced either by molecular change in the mineral, or by oxygen which the sulphur no longer modifies. Here the material is heavy and viscid, clogging the spade, and the yield is reported at 50 to 60 per cent. These figures will show the absolute value of the supply. Beneath, at short distances, say at three feet, lies the ground-rock, invariably Palagonite: thus 'falling in' merely means dirtying the boots. Between the yellow outcrops stretch gravelly tracts which the spade showed to be as rich as the more specious appearances. Many of the issues are alive, and the dead vents are easily resuscitated by shallow boring, in places even by pulling away the altered lava-blocks which cumber the surface.

"Leaving my horse in a patch of the wild oats that everywhere characterise this region, I walked up the sulphur mountain, whose white and yellow washings, so conspicuous from afar, prove to be sulphur, stones, and sand deposited by the rain upon the red clay. Here we picked up crystals of alum and lime and fragments of gypsum and selenite. The crests and box-shaped masses of Palagonite and altered lava gave fine views of the lowlands. On the summit we found some small

mud-springs, which Iceland travellers have agreed to call by the corrupted name 'Makkaluber;' the people know them as 'Hverar.' This peculiarity is therefore not confined, as writers assert, to the eastern hill feet. The richest diggings lie below the crest, and here the fumes escape with a fizz and a mild growl, which vivid fancy has converted into a 'roar.' *I returned from the immense soufrière vastly edified with the spectacle of so much wealth lying dormant in these days of capital activised by labour, etc., etc.* . . .

"To the question, 'Will this sulphur pay its transport?' I reply unhesitatingly, Yes, if great care and moderate capital be expended upon the mines. In the first place, the live vents which waste their sourness on the desert air must be walled round with stones, or, better still, with planks, and the fumes should be arrested, as in Mexico, by pans and other contrivances. The working season would be the summer, AND THE QUANTITY IS SO GREAT THAT MANY SUMMERS MUST ELAPSE BEFORE THE THOUSANDS OF TONS WHICH COMPOSE EACH SEPARATE PATCH CAN BE CLEARED OFF. In winter the produce can be sent down to Húsavík (House's Bay), by sledges, not the Esquimaux-like affair at present used in Eastern Iceland, but the best Norwegian or Canadian. The road is reported by all travellers to be exceptionally good, running for the most part over gently undulating heaths, overlying basalt. There are no rivers of importance on the way, and the fall is about 1500 feet in forty-five English statute miles. The line is wrongly placed in Gunnlaugsson's map: it runs on the eastern, not the western shore of the Langavatn, and it passes to the east of the celebrated Uxahver. I am also assured that the much-abused Bay of Húsavík is a safe harbour, when proper moorings are laid down, that no vessel has been lost there during the last thirty years, and that Captain Thrupp, of H.M.S. 'Valorous,' judged favourably of it. This also was the verdict of an old Danish skipper, who assured us that during the last twenty-five years he has been trading between Copenhagen, Hull, and Húsavík, reaching the latter place about the end of February, and making his last voyage home in October. During the 'balance' of the year masses of floe-ice prevent navigation.

"From such a speculation present returns may be expected. When income justifies the outlay a tramway would greatly cheapen transit. The ships which export the sulphur can import coal, and now that the officinal treatment of sulphur has been so much simplified by the abolition of train-oil, nothing else except pressed hay for the cattle is wanted. When one patch is exhausted, the road can be pushed forward to another. I am persuaded that the *whole range, wherever Palagonite and lava meet, will be found to yield more or less sulphur.* Of course it will be advisable to purchase sundry of the farms, and these, in Iceland, range in value from £300 to £800 maximum. The vast waste lands to the east will carry sheep sufficient for any number of hands; and good stone houses will enable the Englishman to weather a winter at which the Icelander, in his wretched shanty of peat and boarding, looks with apprehension. I have already spoken about the excellence of the summer climate, and any gazetteer shows that the change of temperature at Montreal is more to be feared than in Iceland.

"I am, &c.,

"RICHARD F. BURTON.

"ATHENÆUM,

"October 16, 1872."

The very language of Iceland seems to indicate the importance of its sulphur deposit. It is a significant fact that the Icelandic language indicates sulphur as the "burning-stone," *Brenni-steinn*, unlike the Danish *Svoel*, which is obviously derived from *Sulphur*, Lat.

Mr Vincent's theory that sulphur is produced by the action of water on pyrites, though having some elements of probability in it, is nevertheless entirely unproven in the present state of science, and it is most unfortunate that throughout his paper, theory and fact are mingled in equal proportions, each being independent of the other. "*Tant pis pour les faits.*"

It was left for Captain Burton to point out that the testimony of Commander Commerell, which appears in Mr Vincent's paper to make the transit from *Krisuvík* to *Hafnarfjörðr* a real path of

roses, did not actually speak with such unqualified enthusiasm. Commander Commerell says :

“ A tramway might also be laid down, but as there are two hills to cross, with other difficulties, I could not positively state whether this were possible or not.”

Another objection by Captain Burton appears to be of greater force. It is alleged that the Krísuvík deposits extend over an area of twenty-five miles. No precise geological map is given of the locality, and it is most significant that when Captain Burton and Mr Chapman rode from Krísa's Bay, eastward to the Little Geysir, and although they looked anxiously for the enormous area theoretically assigned to the sulphur-formation, they failed to see any sign of it. The sulphur, like the Spanish fleet, was not in sight; and the absence of the Palagonite, which is invariably in other Icelandic localities found in juxtaposition with the sulphur, ought to hint to geologists the true state of the case.

The Danish Government were not slow to perceive, and have on numerous occasions endeavoured to attract attention to, their valuable mineral products. Mr Lock, an Englishman, some years ago petitioned the Danish Government, and expressed his wish to take a lease of the sulphur mines at Myvatn. A committee was elected by the Icelandic Althing to report upon this subject. This report, which is dated the 14th August 1869, exhibits the utmost timidity in permitting an alien to acquire rights over the mineral products of Iceland. It is given at full length in the terminal notes to this paper.

It is not here necessary to narrate the circumstances under which the Danish Government declined to adopt the local recommendation. It will suffice to say that on the 13th April 1872, a contract was signed between Alfred G. Lock of London and the Danish Minister of Justice, Andreas Frederik Krieger, on the part of the Danish Government. This contract will be found in full in Note No. 1. The lease lasts for fifty years, and the terms, although costly to the English concessionaire, were satisfactory to the Danish Government. The greatest possible irritation has consequently been produced among a very small section of “ Home Rule ” Icelanders, who objected to the work-

ing of the mines by a stranger. The matter, however, being entirely taken out of their hands, their criticism on the arrangement becomes a mere historical question.

A fuller description of Mr Lock's property will be of interest to the English inquirer, as it shows to what an extent capital may be productively invested.

Description of the Property.

The property comprises the solfataras or sulphur springs, the sulphur banks or fields, and the sulphur quarries belonging to the State of Denmark, and situated in the Things Syssel in the north and east provinces of Iceland.

The sources of sulphur in this property are threefold :

1st. The *solfataras*, or sulphur springs.

2d. The *sulphur banks*, or fields.

3d. The *sulphur quarries*.

The Solfataras.—Sulphur is formed by certain gases generated underground by volcanic action, and in solfataras these gases find their way to the surface of the earth through sand, ashes, or other volcanic substances, and in their passage sublime and deposit a certain portion of their sulphur, a certain amount escaping into the air.

This formation of sulphur is continuous and increasing, and in proportion to the strength of the volcanic influences so is the rapidity with which the sulphur is formed and the amount taken from the solfatara replaced. For this reason they are called "living."

The solfataras of Italy require a period of twenty-five or thirty years to renew the sulphur in sufficient quantities to pay for extraction, whilst these are said to require only three years to produce the same result, the same area of solfataras in Iceland being consequently ten times as valuable as an equal area in Italy.

The methods of extracting the sulphur from these are most inexpensive, and the plant required of the simplest description.

The gases at present escaping into the air can be condensed and the sulphur obtained in a pure crystallised state, without any expenses for refining, by collecting the gases in clay vessels.

2d. *The Sulphur Banks, or Fields.*—The gases before mentioned escaping into the air condense and deposit sulphur, which, were the atmosphere always calm, would be precipitated in regular banks, but owing to the constant shifting of the wind it is blown in all directions, forming layers varying from a few inches to several feet in thickness, and extending over vast areas of the surface of the surrounding ground.

3d. *Sulphur Quarries.*—In these localities the accumulation of sulphur has ceased, and when once extracted is not replaced; they are therefore called “dead.” The sulphur is found imbedded in, and mixed with, lime, clay, etc., and nearly all the sulphur exported from Sicily is obtained from this description of sulphur-bearing strata.

The same kind of strata exists in the Romagna in Italy, and in some districts of Spain, but in the Romagna the deposit is 390 feet below the surface, and only yields, in the furnaces, 15 per cent. of sulphur, while the best of those in Spain are from forty to sixty feet below the surface, and contain a varying quantity of sulphur of from 21 to 36 per cent.—the poorest strata being nearest the surface—whilst these (in Iceland) are upon the surface; and Henderson, the missionary, a most trustworthy authority, describes a valley one mile wide and five miles long in the neighbourhood of Krabla, the surface of which is very uneven, and consists of immense banks of red bolus and sulphur, with mixtures of yellow, light-blue, and white coloured earth.

Forbes found similar clays to contain, the white from 30 to 40 per cent., and the red and blue clays about 16 per cent. of sulphur.

The plans made by J. F. Johnstrup, Professor of Mineralogy at the University of Copenhagen, by order of the Danish Government, and attached to the leasing contract, a copy of which will be found in the Appendix, show the solfataras, or living sulphur-fields, to extend over a district of more than SIX SQUARE MILES, viz. :

	Acres.	Sq. miles.	Acres.
No. 2. Krabla-námar,	about 1998	= 3	78
No. 3. Reykjahlid-námar,	„ 1068	= 1½	108
No. 4. Fremri-námar,	„ 808	= 1¼	8

As a gauge of the value of the Icelandic sulphur-fields we have been describing, it would be well to compare them with those of other countries. To arrive at this result, we shall give a comparison of the estimated cost of Sicilian and Spanish sulphur, and contrast it with that derived from Iceland.

COST OF THE SICILIAN AND SPANISH SULPHUR COMPARED
WITH THAT OF THE ICELANDIC.

Cost of Sicilian sulphur, according to Signor Parodi's Report to the Italian Government, vouched by English engineers, viz. :

		Per ton of sulphur.	
		Fr.	c.
Excavation of mineral,	. . .	13	0
Oil and tools,	. . .	5	0
Extraction of mineral,	. . .	16	5
Pumping,	. . .	10	0
Fusion,	. . .	5	5
General charges and taxes,	. . .	11	0
Carriage from mines to port,	. . .	20	0
Rent to proprietor of soil,	. . .	15	0
		<hr style="width: 100%;"/>	
		96	0 = £3 16 10

TO ENGLAND.

		£	s.	d.
Freight,	. . . . .	1	0	0
Export duty,	. . . . .	0	8	0
Port charges, commission, etc.,	. . . . .	0	4	6
Insurance, brokerage, etc.,	. . . . .	0	8	0
		<hr style="width: 100%;"/>		
		2	0	6
		<hr style="width: 100%;"/>		
<i>Cost of Sicilian sulphur, per ton,</i>	. . . . .	£5	17	4

“*Estimated cost of Spanish sulphur, from a Report by Mr J. Sopwith to the Hellin Sulphur Company :*”

The first tin contains	21	per cent.	of sulphur.
„ second	36	„	„
„ third	28	„	„

It takes six tons of Spanish ore to make one ton of sulphur.

	Per ton of sulphur.		
	£	s.	d.
Cost,	2	13	0
Carriage to railway station,	0	2	4
Railway carriage to Cartagena,	0	6	6
Loading, etc.,	0	4	6
Freight from Cartagena to England,	0	14	0
Royalty to Government,	0	2	8
Insurance,	0	8	0
<i>Estimated cost of Spanish sulphur,</i>	<u>£4</u>	<u>11</u>	<u>0</u>

“This sulphur should be worth, either in England or Marseilles, from £6 to £7 per ton.

“Flowers of sulphur would cost £6 per ton, and their value would be £10.”

Estimated Cost of Icelandic Sulphur.

Although from the fact of the deposits of the sulphur producing clay, sand, ashes, etc., in Iceland being on the surface, the working expenses of excavation (and from the closer proximity to the coalfields of England, the cost of extraction) must be far less than those of Sicily, yet it has been thought advisable to be on the safe side by taking the costs of excavation, extraction, and fusion, to be in each case the same.

The expenses of bringing the sulphur to this country will then be :

	Per ton.		
	£	s.	d.
Excavation of mineral,	0	10	10
Oil and tools,	0	4	2
Extraction of mineral,	0	13	9
Fusion,	0	4	7
¹ Carriage to port of shipment,	0	15	0
¹ Freight to United Kingdom, including insurance,	0	10	0
<i>Estimated cost of Icelandic sulphur,</i>	<u>£2</u>	<u>18</u>	<u>4</u>

¹ These two items are calculated at excessive and extravagant rates. The first item (15s. per ton) was supplied by an eminent shipowner, and the amount of freight is also overstated.

	Per ton.
	£ s. d.
Cost of Sicilian sulphur,	5 17 4
„ Icelandic „	2 18 4
<i>Profit in favour of Iceland,</i>	<u>£2 19 0</u>

	Per ton.
	£ s. d.
Estimated cost of Spanish,	4 11 0
„ „ Icelandic,	2 18 4
<i>Profit in favour of Iceland,</i>	<u>£1 12 8</u>

Estimated Profit on Icelandic Sulphur.

The market price of sulphur ranges from about £6, 5s. per ton for third quality to £8 for best. As by far the greater part of the Icelandic sulphur would be best quality, its average market price may be safely put at £7 per ton.

	£ s. d.
Market price,	7 0 0
Cost price,	2 18 4
<i>Estimated profit per ton,</i>	<u>£4 1 8</u>

Estimated Profit per Annum.

Italy, in the year 1870, exported 52,546 tons. From the comparison between the relative formations, there is every reason to believe that as large a quantity can be exported from Iceland as from Italy; but, supposing that for the first year or two only one-third that quantity is exported, viz., 17,515 tons, at a profit of £4, 1s. 8d. per ton, the annual profit would amount to over £71,500.

NOTE I. TO SECTION V.

(Translation.)

LEASING CONTRACT.

The undersigned, Andreas Frederik Krieger, His Majesty the King of Denmark's Minister of Justice, Commander of the Dannebrog and Dannebrogsmænd, Commander of the Order of the North Star, in virtue of the authority given him by a Royal Resolution of the 9th March 1872, hereby grants to Alfred G. Lock, of London, a lease of the sulphur mines belonging to the State, situated in the Thing Syssel in the North and East Provinces of Iceland, on the following conditions :

I. Exclusive right to work the above-mentioned mines is given to the lessee for the duration of the lease ; they consist of the so-called Reykjahlidar, Krabla, and Fremri-Námar ; on the other hand, the present contract gives the lessee no right to the use of, or to the possession of the land around the mines, which ground does not belong to the State. It must be remarked that the mines on the church lands at Theistareykir are not included in this leasing.

II. The lease is given for fifty years, reckoned from the 1st September 1872 to the 31st August 1922, without either of the contracting parties having the right to withdraw from it. Liberty, however, is conceded to Alfred G. Lock to withdraw from the contract at any time before the 31st August this year, date inclusive.

The lessee can make over his rights acquired by this present contract, together with his obligations, to other parties, against whose respectability and solvency no reasonable objection can be made, but he shall nevertheless be bound to communicate such transfer to the Ministry of Justice. His rights likewise shall at his death be transmitted to his heirs.

III. Full liberty is given to the lessee as regards the working of the mines. The sulphur, however, must not be washed in running waters which have their outlet in the sea, nor in fishing-

waters, and as a matter of course the sulphur beds or mines must not be destroyed, with respect to which it is remarked that the earth during the diggings must not be trodden down into the warm beds, which are designated by a green colour in the maps attached to the contract, which in the year 1871 were made by J. F. Johnstrup, Professor of Mineralogy at the Copenhagen University.

On the delivering over of the mines a survey will take place, at which the maps in question will be used as guides. On the delivering back of the mines a survey shall likewise take place.

IV. Neither the lessee nor the workmen he employs at the mines shall be subject to any extraordinary taxes or imposts by the State or the municipality, other than those imposed on the other inhabitants of the island; and he shall in this respect enjoy the same rights as natives; but, on the other hand, he shall not be exempted from the ordinary taxes and charges imposed by the general laws of the land.

V. The lessee shall be bound to allow the State authorities to inspect the mines whenever they may think fit to do so.

VI. The lessee shall pay an annual rental of £50 for the first year; £60 for the second year; £70 for the third year; £80 for the fourth year; £90 for the fifth year; and £100 for the sixth and for each of the succeeding forty-four years.

The rental shall be paid *in advance* to the Minister of Justice in Copenhagen in two half-yearly payments,—viz., on the 1st September and 1st March, each time with the half part of the yearly amount. The first time on the 1st September 1872, with £25, for the half-year from that day to the 28th February 1873.

The lessee shall, on the signing of this present contract, as security for the due payment of the rental and the proper working and redelivery of the mines in an uninjured condition, deposit a sum of 5000 rixdollars in the private bank of Copenhagen, in such manner that the Minister of Justice retains the certificate of deposit in his possession, and can, without trial or sentence, and without the lessee's authority, take them out of the private bank, which institution shall be forbidden to return them to the lessee or others without the Justice Minister's permission.

As long as the above-mentioned amount is deposited in the private bank the interest of the sum may, without let or hindrance from the Minister of Justice, be paid to the lessee or his representatives.

On the expiry of this leasing contract and the redelivery of the sulphur mines in an uninjured state, the Minister of Justice shall be bound to return the certificate of deposit to the lessee or other duly authorised persons.

VII. Should the rental not be paid at the proper times, and should the lessee destroy the mines, he (the lessee) shall lose the rights conceded to him by this contract, and the Minister of Justice shall in such case be empowered to take from him the lease (eject him from the mines), and the deposit money be forfeited to the Iceland Land Fund (State Fund). Should, however, a breach of contract take place only through omission to pay the rental, and the collective amount of the rentals still to be paid be less than the deposit, the Minister of Justice will refund the difference.

VIII. Should the lessee not have removed, within two years from the expiry of this contract, or from the date of its annulment (see § 7), all buildings, machinery, and the like put up at the mines, they shall become the property of the State without indemnity.

IX. Disputes arising as to whether the lessee's treatment of the mines is destructive to them, shall be settled by arbitration, each of the contracting parties choosing one man, and these latter in case of disagreement to choose an umpire. If from any cause an arbitration cannot be obtained, the parties at issue are empowered to appeal to the law courts; as likewise in all other disputes arising out of this contract, in which cases the Royal Supreme Court of Copenhagen shall be the proper tribunal; for which reason the lessee, on signing this contract, shall appoint a Copenhagen resident, who on his behalf shall receive summonses for his appearance. Should the Minister of Justice think fit to take law proceedings against him in Iceland, he (the lessee) shall be bound to receive summonses at the sulphur mines for his appearance at the Iceland courts.

X. The expense of drawing up this contract, with the stamped

paper and registration, as well as the expense of surveys on the delivering over and the delivery back of the mines mentioned in this contract, shall be borne by the lessee.

The contract shall be drawn up in duplicate, of which the one copy is held by the Minister of Justice and the other by Mr A. G. Lock.

On the above conditions I, Alfred G. Lock, of London, have signed the present contract.

Copenhagen, 13th April 1872.

(Signed) KRIEGER.

(Signed) { For Alfred G. Lock,
A. DE C. CROWE.

Witnesses—

(Signed) RICARD.

(„) POULSEN.

The value of the stamp on this contract is calculated at 9 rigsd. to the pound sterling.

NOTE II.

REPORT OF THE ALTHING.

REPORT drawn up by the Committee elected for this purpose by the Icelandic “Althing” of 1869, translated after the original Icelandic text from the “Althing” reports.

We, the undersigned, have, by the honourable “Althing,” been elected into a Committee, to state our opinion as to a memorial which about three years ago has been sent in to the Government by an English gentleman, Mr Lock, importing his wish to take lease of the sulphur mines in the north of Iceland, situated between 65° 20' north latitude and the Arctic Sea, or, otherwise speaking, the mines lying on the said tract, east of “Myvatn” (Gnat Lake) and west of Jökulsá (Glacier River).

Before stating our opinion about this matter, we think it necessary that it should be clearly understood by the honourable Assembly—

1. How the matter now stands with the sulphur mines in question.

2. What right the Government has to lease out these mines without incurring some obnoxious consequences to the leaseholder, or to other parties concerned.

The sulphur mines that are at the disposal of the Government¹ are those of "Reykjahlid," "Kráfla-námar" (the mines of the Krafla mountain), and "Fremri-námar" (the mines farthest from the coast), but "Theistareykja-námar" (the mines of Theistareykir) have never been Government property, although they apparently are lying in the tract of which the above-mentioned Mr Lock has wished to take lease.

As it is well known, from the excellent essay by the Right Reverend Hannes Finnson, Bishop of Iceland (see "Rit hins islenska lærdómslista-félags"—the Works of the Icelandic Society of Learning and Arts—vol. iv., p. 29), Mr Paul Stigsson, superintendent or governor of Iceland, bought of the Thorsteinssons, so called, in the presence of Mr Hans Nilsson and Mr Hans Lauritsson, on the behalf of his Majesty Frederik II., the mines of which there is no question here, with the exception of the Theistareykja mines, or more properly speaking, the right of digging sulphur in these mines. This bargain was made at Eyjafjord on the 15th of August 1563, and the said Thorsteinssons gave up the sulphur-diggings in "Fremri-námar," "Kráfla-námar," and "Heidar-² (heath) námar;" but it is nowhere on record, that any land or ground for house-building and road-making has been comprised in this bargain. As it appears, the Government of his Majesty Frederik II. has thought it sufficient to acquire the monopoly of the sulphur that was to be found there, for, as it appears, there has, as a rule, never been lack of persons willing to dig out the sulphur and to carry it, like *other merchandise*, down to the sea-coast.

¹ A certain Hr "Thorlákur O. Johnsen," whom I met in Iceland, wrote to the *Standard* (Nov. 16, 1872), and asserted my "entire ignorance" concerning Iceland generally, and the relationship between Denmark and Iceland in particular. What his ignorance, or rather dishonesty, must be, is evident when he states a little further on: "As to the so-called wisdom of the Danish Government in leasing the mines to strangers, there can be only one reply, that *all the mines in Iceland, whether of sulphur or other minerals, belong to Iceland and not to Denmark.*"—R. F. B.

² I presume this to be a clerical error for "Hlíðarnámar" (Ledge-springs).

In this manner the above-mentioned mines were worked in the time of his Majesty Frederik II., and a great quantity of sulphur was dug up there. It is said that the profit has sometimes, in the said period, amounted to 10,000 rixdollars (or upwards of £1100), and that the total export of sulphur has gone up to about 200 commercial lasts (or 400 tons) a year.

In the time of Christian IV. the working of the mines, which had answered so well in the time of his father, was almost discontinued; and the attempts of this king to let the mines, for a period of fifteen years, to Mr Jorgen Brochenhuus, of Wolderslev, and Mr Svabe, proved a complete failure. Thus, in the time of Christian IV., the mines were of little consequence for the Government and the country. This, the Right Reverend Hannes Finsson says, was a great drawback for the Danes, as it caused the scarcity of powder, which was one of the reasons why the Danes were defeated by the Swedes in Holstein in 1644.

Shortly after the middle of the seventeenth century, or in the year 1665, a certain "assessor," Gabriel Marsilius by name, acquired a concession of digging sulphur and exporting it from Iceland; and it is said that he has exported from here a very great quantity of sulphur with considerable profit. Since that time, or since 1676, little is said of the sulphur-mining in Iceland until the first part of the eighteenth century; then, in 1724, two foreigners, Mr Sechmann and Mr Holtzmann, acquired a concession of exporting sulphur from Iceland; and it is said that they exported a great quantity of sulphur for a period of five years; but this export was again discontinued, owing to the death of Mr Holtzmann, who was the leader of the business, and to the apparent unwillingness of Mr Sechmann to repair to Iceland.

In the year 1753 the sulphur-mining was recommenced in Iceland by the Government. First it was commenced in the south, and afterwards, or in 1761, in the north (see "Eptirmæli 18 aldar" — "Review of the Events of the Eighteenth Century"). The author of this work, the late Mr Stephensen, says, that both the mines, the southern and northern, have been worked with considerable profit, adding, that the produce of the mines has amounted to 1400 rixdollars (or upwards of £155) a year; and in 1772

the profit of the sulphur mines in the north, according to the same author, was estimated at 1260 rixdollars (or about £140). After 1806 the Danish Government leased out the sulphur mines in the north to some merchants there for a trifling yearly rent, which in no way was a sufficient indemnity for the deterioration of the mines during the time of the lease.

For ten years ago it was a general opinion that the brimstone in the Icelandic sulphur mines for the most part was embedded in the layer that covers the "live mines," and which must be considered a "sublimate" product of the so-called sulphur pits or caldrons; it had, however, been observed that in the "Fremri-námar," so called, "dead mines" also existed where the sulphur stratum sometimes was a foot thick. The sulphur digging at Krisuvik last year has proved that these strata can be a good deal thicker, as it has also been ascertained that most sulphur mountains contain a considerable quantity of sulphur earth, clayish and ferruginous sulphur; all of which might yield from twenty-five to fifty per cent. of clean sulphur, if managed in the right manner.

When the three naturalists, Mr Steenstrup, Mr Schythe, and Jonas Hallgrimson, travelled through Iceland in 1840, they calculated that the sulphur mines in the north might yield 10,000 rixdollars a year; but Dr Hjaltalin, who, ten years later, was sent to examine these mines, disavows this statement, adding that the mines, as the matter then stood, could by no means yield so much, for the "live mines" were then in a state of deterioration, and that it would be impossible exactly to say how many "dead mines" were to be found till it is ascertained by successive examinations; on the other hand, he is convinced that the mines of Krisuvik might be able to yield 100 commercial lasts (or 200 tons) of clean sulphur a year, and the experience of the recent time has proved this to be no exaggeration; for during the last winter (1868-69) about 250 commercial lasts (or 500 tons) of raw sulphur have been dug up, which must make a good deal more than 100 lasts of clean sulphur at least; further, Dr Hjaltalin observes, that copper ore of rather a good quality is to be found there, and a more recent experience has rendered it likely that there is a considerable quantity of this mineral.

On the other hand, the sulphur must, no doubt, have accumulated to a considerable degree in the mines of the north for the last twenty years they have not been worked; it is, therefore, pretty certain that they might now yield a considerable quantity of sulphur if they were worked in the right manner; but as it must always be borne in mind that no mines are so liable to deterioration as sulphur mines, it must in consequence be very precarious to make them over to foreigners. A French geologist, Mr Eugène Robert, who travelled here in 1835, and afterwards has written treatises on the geology of Iceland in the French language, has also called attention to this point. He says, that care ought to be taken not to lease out to the Englishmen (who then were applying for the lease) the mines in the north, as they might be of great consequence, the sulphur mines of Sicily having begun to fall off.

As pointed out by the history of the country, and sufficiently proved by the experience, the produce of the mines in the north, if worked in the right way, ought to outweigh by far the lease-rent offered by Mr Lock; it would consequently be a downright loss to the country now to lease out those mines to this foreigner, who would not be able to give any satisfactory guarantee for his working the mines in the right manner, but might, after a lapse of several years, return them so spoiled that the country might, for a long time at least, miss the profit which it ought to have by these mines: *indeed the lease-rent offered by the memorialist seems to be comparatively high when compared to what was paid for the mines in the beginning of the present century, but when it is taken into consideration that the rent now offered is only the tenth part of the net profit which the mines yielded in the sixteenth century, the offer is by no means advantageous, neither is it desirable that foreigners should be allowed for many years to import into this country a great number of foreign workmen, as this might lead to the Icelanders being deprived of a profitable business in their own native land.*¹

¹ The words in italics show the good old Æsopian policy, "dog in the manger" redivivus. The Icelandic "hand," when not superintended by foreigners, is idle and incurious as the native of Unyamwezi: he will not work, and the work must not be done for him by strangers! In the Journal I have suggested employment of the natives, who might learn industry by good example and discipline.—R. F. B.

The population of Iceland is, as it is well known, constantly increasing, but several branches of trade are rather in a state of decadence. Nothing could, therefore, be more beneficial to this country, than if here were to be found profitable mines, in which labourers might work in all sorts of weather, and this may be done in sulphur and other mines, as the experience showed at Krisuvik last winter; ten and sometimes upwards of twenty labourers were at work there, almost the whole winter, earning good daily wages. There is nevertheless no security to be had, that the inhabitants shall be able to benefit by this, if the mines are made over to strangers, neither can it be controlled that they shall not destroy the mines altogether, and render them completely useless after a lapse of some years.

The Icelandic sulphur mines are in such a condition as not to be worse for waiting, on the contrary they will improve by it, and it would be greatly beneficial to them, not to be worked for the present.

The sulphur mining at Krisuvik has shown that these mines are better and richer than had been expected; and this may be the case too with the mines in the north, which have most frequently been deemed richer and more extensive than those of Krisuvik.

When sulphur trade has been carried on in this country, both in past centuries and at present, the mode of proceeding has been very inappropriate and unpractical, for partly the sulphur has been carried, with all the dross in it (which often goes up to forty per cent. or more), down to the sea-coast, and from there to Copenhagen; partly the method of cleaning has been so unsatisfactory and inappropriate, as to render the cost of cleaning the double of what is needful. It appears from the writings of the late Bishop Hannes Finsson, that in the time of King Frederick II., the sulphur was cleaned by means of train-oil, and this method has been continued down to the middle of the present century. This was sheer insanity, as it made the cleaning many times more expensive than was necessary, and than it was at the same time in other countries, where sulphur was then cleaned by means of sublimation. But this was not all, the grease moreover that got into the sulphur, rendered it unfit for powder manu-

facture, as may be seen from the writings of Mr Jón Eiríksson and others. Of late a new method has been hit upon in France, namely, to clean the sulphur by condensing hot steam, and as hot springs are to be found in the neighbourhood of all the Icelandic sulphur mines, this might now be turned to a good account for the sulphur trade; besides it would make the cost of transport by far less heavy, if the sulphur could be carried down to the sea-coast and marketed in a clean state.

It results from all this that Mr Lock's offer is by no means so acceptable as some might suppose, for the local government (when established here) might, with the greatest facility, make the mines in the north many times more profitable than they would be if Mr Lock's offer were to be accepted; moreover, the mines being at the disposal of the said government, a sufficient control may be had that they shall not be overworked or destroyed.

Were the Danish Government, therefore, to grant the request of the memorialist, as it is framed, this might easily, as the matter now stands, lead to suits of law between the Government itself and him, on the one hand, and between the said Government and some private landowner, on the other; for it is quite certain that the Government has no right whatever over the sulphur trade in all the localities pointed out by the memorialist. As clearly evinced by the late Bishop Hannes Finsson, the sulphur trade in Iceland can, in no way, be considered as a "regale;" and, accordingly, the Government ought to be very circumspect in this matter, lest it hurt the right of private landowners.

From the above-mentioned motives, it seems to the Committee that it is inadvisable to accept the offer of the memorialist, and, consequently, submits to the honourable "Althing" to dissuade the Government altogether from granting the concession requested by Mr Lock.

But as some members of the Committee have uttered the opinion that it might be considered as partiality, altogether to exclude foreigners from the sulphur trade in Iceland, provided that it could be sufficiently controlled, that this should neither be detrimental to the country in general, or to the mines in

special, the Committee has thought it its duty, if this consideration should prevail in the honourable assembly, to submit a secondary or modified proposal, to the effect that it shall be requested of the Government to make the concession dependent on the following conditions :

1. The memorialist shall himself make the necessary arrangements with the parties concerned concerning pieces, lots, and parcels of land, which he may be in need of, for the cleaning and transport of the sulphur, and which are not at the disposal of the Government.
2. The memorialist shall have commenced the working of the mines within a year from the day on which the licence is handed over to him.
3. The memorialist shall always give the natives of Iceland opportunity to work by halves at the cleaning and transport of the sulphur, and he shall not, for this purpose, employ foreigners more than by halves at most, as far as he offers the same conditions to the natives as to the foreigners, and these conditions shall be acceded to by the former.
4. The Government shall be authorised, at the cost of the memorialist and its own, to be paid by halves, to appoint a man for the purpose of controlling, that the leaseholder shall not destroy the mines for ever by his method of working them.
5. The memorialist shall pay a rent of £100 sterling for the first year ; for the next two years, £200 ; for the next two years thereon, £300 ; and for the last five years, £400 a year ; and the concession shall expire after a lapse of ten years.
6. The memorialist shall, on receipt of the licence, deposit a sum of £5000 as a security for the fulfilment of these conditions, but it shall be returned to him at the end of the ten years, during which he shall have made use of the concession as far as he shall have fulfilled all the conditions that have been stipulated ; but otherwise he is to forfeit both the concession and security-money if he shall have infringed any of the above conditions, excepting only if this infringement be caused by diffi-

- culties in making such arrangements with the parties concerned on the spot as are mentioned under *head 1*.
7. All disputes arising from this contract between the Government on the one hand, and the memorialist on the other, shall be settled by the said Government alone; and no appeal to courts of law shall be allowed in this case, neither in this country or elsewhere.
 8. Both the yearly rent and security-money, if forfeited, shall fall to the Icelandic country-fisc, and be at the disposal of the "Althing."

REYKJAVIK, *the 14th August 1869.*

(Signed) JÓN HJALTALÍN. JÓN SIGURÐSSON.
Chairman and Reporter, BENEDIKT SVEINSSON.
 TRYGGIR GUNNARSSON.
Secretary, GRÍMUR THOMSEN.

In a most humble petition of the "Althing," dated the 7th September 1869, addressed to His Majesty the King, the said assembly has altogether adopted the considerations and proposals of the Committee, as specified above.

Thus, *in the first place*, the "Althing" begs that the Government of His Majesty *shall not accept Mr Lock's offer* to take lease of the sulphur mines in the north, but, on the contrary, *refuse altogether to lease them out for the present*; and in case His Majesty's Government should not think fit to follow this advice, the "Althing," *in the second place*, begs that the concession, if granted at all, may be made dependent on such conditions as are specified in the above report under *heads 1 to 8*.

The only difference between the conditions contained in the Report of the Committee and those in the petition of the "Althing" is: that under *head 5* is added a clause to the effect that the lease-holder, besides the yearly rent, *shall pay £10 a year to the clergyman of "Myvatns-thing" (or district of Myvatn)*.¹

¹ The words in italics show the "narrowness of the insular mind:" the idea of £10 per annum being an item of any importance in the extensive operations which would be required to make these sulphur diggings pay!—R. F. B.

SECTION VI.

SULPHUR IN SICILY.

The kindness of Mr Consul Dennis of Palermo enables me to offer the following sketch of sulphur in Sicily.

Sulphur, it is well known, forms the most important branch of Sicilian commerce and exportation. Found, as in Iceland, in the blue marl which covers the central and the southern parts of the island, its area extends over 2600 square miles; fresh mines are always being discovered, and there is no symptom of exhaustion. In 1864 Sicily worked about 150 distinct diggings, whose annual yield exceeded 150,000 tons; in 1872 these figures rose to 550 and nearly 2,000,000 of quintals, or cantars. The latter contains 100 rotoli (each 0·7934 kilogrammes = $1\frac{3}{4}$ lb. Eng. avoird.), or 79·342 kilogrammes = 175 lbs. Eng. avoird. The richest in 1864 were those of Gallizze, Sommatine, and Favara: their respective yearly production showed 100,000, 80,000, and 60,000 quintals.

“The visitor to a sulphur mine,” says Mr Goodwin, late H.M.’s Consul, Palermo, “usually descends by a plane or staircase of high inclination to the first level, where he finds the half-naked miner picking sulphur from the rock with a huge and heavy tool; boys gathering the lumps together, and carrying them to the surface; and if water be there, the pump-men at work draining the mine. A similar scene meets his eye in the lower or second level. Above ground the sulphur is heaped up in piles, or fusing in kilns.” This passage well shows the superior facility of collecting sulphur in Iceland, where it lies in profusion upon the surface.

The ore thus obtained by fusion, after hardening into cakes, is carried to the coast by mules and asses, or by carts where there are roads. When the new network of railways covers the island, of course there will be greater facility for transport, but the expense will increase with equal proportion.

The number of hands in 1844 was estimated at 4400—*i.e.*, 1300 pick-men, 2600 boys, 300 burners, and 200 clerks and

others, to whom must be added 2600 carters, and 1000 wharfingers, raising the total to 8000, out of a population (January 1, 1862) of 2,391,802, inhabiting an area of 10,556 square miles.

The following translation, or rather an abbreviation of an article, "Lo Zolfo," in the journal *Il Commercio Siciliano* (March 4, 1873), gives the latest statistics:

"The Committee of Industrial Inquiry, during its recent sessions at Palermo, Messina, and Catania, has collected valuable information upon the general conditions of the island, and upon its principal articles of commerce.

"We will begin with the chief branch, sulphur, whose exportation in the raw state during the last decade is shown by these figures:

In 1862, = 1,433,000 quintals = 250,775,000 Eng. lbs. avoird., or 125,387 tons of 2000 lbs.	
„ 1863, = 1,470,000	„
„ 1864, = 1,398,000	„
„ 1865, = 1,382,000	„
„ 1866, = 1,791,000	„
„ 1867, = 1,923,000	„
„ 1868, = 1,723,000	„
„ 1869, = 1,701,000	„
„ 1870, = 1,727,000	„
„ 1871, = 1,712,000	„
„ 1872, = 1,969,000	„ (estimated).

"Sicily may be considered the monopolist of the trade in natural sulphur. Other solfataras exist in Croatia, Galicia, and Poland; at Vacluse in France, at Murcia in Spain, and in Egypt on the Red Sea;¹ but the production may be considered unimportant. Even the Zolfare of the Romagna cannot be compared with those of Sicily, as we see by the following figures of exportation:

In 1862, = 22,057 quintals.	
„ 1863, = 57,275	„
„ 1864, = 35,524	„
„ 1865, = 70,841	„
„ 1866, = 4,351	„
„ 1867, = 2,722	„

¹ Iceland is here ignored, perhaps from the jealousy which foresees a fortunate rival.

In 1868, =	8,846	quintals.
„ 1869, =	3,885	„
„ 1870, =	15,659	„
„ 1871, =	12,320	1 „

“The annual production of the Romagna mines reaches only 120,000 quintals, including the less important diggings of Latera Scrofaro, Volterra, Grosseto, and Avellino. Sulphurous earth covers all the Sicilian provinces of Caltanissetta (Kal' at el Nisá, the fort of women) and Girgenti,² and a part of Catania; whilst there are two isolated ridges (Iembi) at Lercara de' Freddi of Palermo, and at Ghibellina of Trapani. Those actually worked exceed 550.

“Experts greatly differ in opinion concerning the supply still remaining for exportation; we have determined that the diggings at the actual rate of exportation may last another hundred years.³

“Mining property, according to Sicilian law, belongs to the soil; and public opinion, as well as vested interests, would strenuously oppose the legislation which prevails in upper Italy. Yet the present conditions are highly unsatisfactory. Working upon a small scale in fractionary estates has diminished profits, and in many cases has caused mines to be abandoned. And the evil is ever increasing with the greater depths of the diggings

¹ These immense fluctuations in the market are probably caused by the *Phylloxera vastatrix* now devastating the Continent. Trieste alone, for instance, has of late years imported as much as twenty cargoes of 200 tons each (a total of 4000) per annum; and the unground sulphur sells at about £7, 10s. per ton as in England. The spread of the disease is likely to cause an increased demand.

² In 1864, according to Mr Consul Dennis, the author of Murray's "Hand-book of Sicily," the two most important mines of Girgenti were "La Crocella" and "Maudarazzi" near Comitine, belonging to Don Ignazio Genusardi. They yielded annually 140,000 quintals = 10,937½ tons, worth about £70,000, and gave constant employment to 700 hands (chiefly from the opposite town of Arragona), at the daily cost of about £60. The produce was shipped at the Mole of Girgenti, and the road was thronged day and night at certain seasons with loaded carts and beasts of burden, chiefly mules.

Caltanissetta, Serra di Falco, on Monte Carano, and St Cutaldo are villages in the heart of the sulphur district. "The scenery is wild and stern. The mountains are of rounded forms, always bare, here craggy, there browned with scorched herbage, and in parts tinged with red, yellow, and grey, by the heaps of ore and dross at the mouths. Corn will not thrive in the fumes of sulphur; what little cultivation is to be seen is generally in the bottoms of the valleys. The hills around St Cutaldo are burrowed with sulphur mines."

³ In a recent report to the Italian Government, Sig. Parodi estimates that Sicilian sulphur will be exhausted in fifty to sixty years.

where the inflow of water offers fresh difficulties. The only remedy would be the combination of small farmers, and the massing of the less important diggings under a single 'cultivator.'

"As yet there are only two such associations; and their success in working properties so subdivided as not to pay, recommends them to societies and capitalists. One is at the Croce group of Lercara, where many owners have joined to subscribe for machinery to raise the mineral (*macchina di eduazione*). The other is at the Madore group, also of Lercara; here a considerable part of the very small diggings has of late been let to one and the same 'cultivator.' At Aggira, in the province of Catania, there are two bodies of workmen, called *Gabellotti*, because they unite to pay the annual Gabella (rent-price) to the proprietor. Of these the large and the more successful is at Assaro in the territory of Calascibetta; it has collected eighteen members who formerly injured one another by the mismanagement of the deep diggings and by jealous competition in securing hands. It is a civil society with unlimited liability; some of the associates receive only half shares, which reduces the whole number of *actionnaires* to sixteen. The works are directed by a resident member, and the exportation by another at Catania. It is a good instance of how valueless mines may be made to pay.

"But Sicily, under her present law, has to contend not only against the excessive division of property, but also with the normal conditions of leasing it. Of these, the most injurious is the short term of the Gabella, which averages six, and which seldom passes nine, years. This period, far too brief to permit the use of machinery, which, demanding unusual outlay, secures a much greater amount of production.

"The *Gabella* is generally defrayed in kind, that is, in sulphur at the mouth of the pit. Only one case of money payment is known; in 1868 the Prince of Sant 'Elia, owner of the Zolfara di Grottacalda, leased his property to an anonymous French society, which, besides advances of capital *à fonds perdus*, can afford a high yearly rent. Before this agreement was concluded, the *Gabelle* did not exceed 30 per cent. of the total production; now they have risen to 36, and even to 40. But in this case longer leases were conceded.

“Several of the most important diggings have been let to French and English companies.

“Nothing can be ruder than the mode of working. Where the usual outward signs of sulphur present themselves, steeply inclined galleries called *Buchi a Scale* are driven, and the ore is brought to grass, without any of those preparatory measures which demand time and money, but which afterwards yield so well. The underground works are longitudinal tunnels following the inclination of the sulphur bank, and so cut by cross galleries that the prospect suggests a cavern supported by stalactite columns. The metal, detached with picks, is carried up the rude flights of stairs by children whose ages vary from seven to fifteen, and it is disposed about the pit mouth in a peculiar way, so as to facilitate measurement and distribution.

“When the bank is exhausted, the pillars are attacked, and thus the abandoned portions readily fall in. Accidents at times occur from the pressure of the ground, and these have often caused loss of life; they usually result from the negligence and ignorance of the overseers (*Capimaestri*), men who ignore everything but ‘rule of thumb.’ The Ministry of Agriculture and Commerce has wisely drawn out a project of mining laws, intended to secure the safety of the workmen by giving information to the directors, and by facilitating works of common interest to those concerned. It is evident that the State can remove the obstacles of sub-divided property, and that its duty is to look after the condition and the health of its subjects who are working 80 to 100 metres underground. Already the ministry has founded a superior school of mines at Palermo, and a second at the Zolfare of Caltanissetta. Let us hope that its term of office may last long enough for carrying out the instruction which alone can develop the sulphur supply of Sicily.

“Here, as elsewhere, the miners’ deadliest enemy is water. Of the various draining systems applied to the tunnels, the favourite is a long cut through the gallery, carried to the surface; and its principal merit is the saving of labour where wages are, as in this island, unusually high. But as the disposition of the ground often causes drains to become long and expensive works, there is a general use of pumps. The latter, till the last few years,

were made of wood, and worked by hand; metal has become more common, but steam machinery is almost confined to the foreign concessions. As regards hauling up, shafts, or vertical wells, are almost unknown, although they have been strongly recommended for mines which have reached 50 metres, and *a majori* for those 100 metres deep.

“The metal, when brought to grass, is freed from its earthy matters principally by fusion; the system being founded upon the different degrees of caloric required to liquefy ore and dross. The operation most in vogue is that called *dei Calcaroni*: the heaps are covered with a layer of earth, and the heat is kept up chiefly by burning the sulphur itself. As those kilns are built upon inclined surfaces, the melted matter flows into wooden forms, where it cools and solidifies. The great loss, calculated at about one-third, has led to a variety of improvements; many have been adopted by private cultivators, few have been more extensively applied, and none can boast of complete success. The best hitherto produced is the so-called ‘vapour-fusion’ invented by a certain Sig. Thomas, and patented to the *Società privilegiata per la fusione dello Zolfo in Italia*, an anonymous body, whose headquarters are at Milan. The essential part of the process is to separate the ore by ordinary fuel, using for the transmission of caloric water-steam at the tension corresponding with the temperature which fuses sulphur. The Society established its apparatus at several mines, which paid a proportion of raw sulphur as bonus to the patentees; the remainder went to the ‘cultivator’ as remuneration for the mineral which he provided. Many were disused after a few months, the reason alleged being that they were of use only when applied to poor ores and gypseous gangues. Lercara is the only place which still works by ‘vapour-fusion.’

“The sulphur is exported either in lumps (*ballate*¹), as it comes from the moulds, or it is refined to suit the intended object. That used for vines is ground before exportation; there are mills at all the ports, and the expense per quintal reaches only a few centimes. The powder is stored in sacks.

¹ Each *ballata* weighs 70 rotoli = 122½ lbs. avoird., and two are a mule-load.

“ Sicilian sulphur is sufficiently pure, as a rule, to be directly adopted in many chemical and industrial processes. For the pharmacy, however, for gunpowder, and for other specialties of technology, further refining is necessary. This operation is limited on the island by the high price of fuel; there are only two or three *usines* at Catania and at Porto Eurpedoch; moreover, these work irregularly, and on a small scale. Thus the refinery of Sicilian and Romagna sulphurs is carried on almost exclusively abroad.

“ The principal exporting places are Catania, Licata, Palermo, Porto Eurpedoch, Terranova, and Messina. The following are the approximate figures of the respective harbours:

Catania	ships,	.	.	202,000	quintals.
Licata	„	.	.	460,000	„
Messina	„	.	.	50,000	„
Palermo	„	.	.	78,000	„
Porto Eurpedoch	„	.	.	917,000	„
Terranova	„	.	.	200,000	„

Palermo offers great advantages of freight by means of return colliers, but the distance of land transport is fatal to all but the sulphur of Lercara.¹ Messina exports only to the United States; sulphur forms the heavy cargo, the lighter being composed of rags, oil, and *agrumi* (sour fruits, lemons, etc.). But if there is little shipping of the mineral at Messina, she may be called the headquarters of the sulphur trade. Embarkation takes place at other harbours, though there are often badly protected roads; the only reason being their neighbourhood to the mines. Messina² urged upon the Committee a reduction of tariffs on the railways which connect it with Catania and Leonforte; but it would be hardly fair thus to protect one city when its rivals, besides being favoured by topographical position, are industriously improving their means of embarkation, and are making efforts to protect shipping during winter.

“ At all the harbours there are merchants who make the export their specialty; they buy up the produce of the smaller mines,

¹ On the northern flank of the range, which, running from north-north-east to south-south-west, nearly bisects the island. It is a mean town in the mountains. Licata, the southern port, is nearest to the central mines.

² Her chief exports are fruit, oil, and silk.

store it in their magazines, and ship it when the prices are most likely to pay. The principal 'cultivators,' however, have established their own deposits, and export on their own account without using middle-men.

"An intelligent merchant at Messina assured the Committee that two-thirds of the total consumption took place in winter and the rest in summer, whilst the exportation during the latter season is by far the greatest on account of the superior ease and safety of navigation. But, as the melting is mostly in September, the results to cultivators and to exporters are, that a large part of the year passes away in inaction, accumulating interest upon cargoes and seriously checking profits.

"It is greatly to be desired that some company with large capital should be formed to make advances of money, thus setting free the modest means of 'cultivators' and merchants, and enabling them to lay out more upon the mines.¹

"The actual medium price (March 4, 1873) of sulphur in the Sicilian ports is represented by twelve lire (or francs) per quintal; and the following are the approximate items which make up this figure :

Cost of mining,	= 6·600 lire or francs.
Land transport,	= 2·480 "
Embarking,	= 0·313 "
'Cultivator's' profit,	= 1·607 "
Export dues,	= 1·000 "
	Total, 12·000 ² "

"After a few years, when the network of railways shall have been finished, when embarkation is improved, and perhaps when the production is rendered easier and safer, we may hope to see the figure L.12 fall to L.11, and even to L.10.50.

"The Committee has hitherto considered only the produce of Sicily *per se*, and this appears the place to notice its future production and its employment in the general commerce of the world. Many have indulged in exaggerated hopes and fears

¹ "Trust" seems to be the *beau idéal* of trade where it has not been tried. I have seen its workings in Africa and in Iceland, and my experience is that it is a *pis aller* which gives more trouble than it is worth.

² Here it is not stated whether paper or specie "lire" are meant.

upon this subject. While some fear that our mineral may be superseded by other substances, others hope that the reduced cost of Sicilian sulphur may enable it to serve the purposes for which pyrites are now generally used.

“An attentive examination of the question proves that, in the actual state of industry, sulphur and pyrites have nothing to fear from each other.

“Several industries, especially the manufactures of sulphuric acid, do not require pure sulphur in the free state; they find it more economical to extract that contained in metallic sulphures, especially in iron pyrites. On the other hand, it is well known that extracting pure sulphur from the sulphures and manufacturing sulphuric acid from pure sulphur are practically impossible; the former could never contend against the Sicilian mines, nor can the latter rival the cheap produce of pyrites. As the uses of the two are different, so will be their sources of supply; and it is hard to believe that any change of price can cause *concurrency* between the two.¹

“A fair proof is the concurrent development of both articles. Between 1832 and 1872 the produce of the Sicilian mines has quadrupled; and this was exactly the time when pyrites began to be used, and successfully took their place in the manufacture of sulphuric acid.

“These considerations should silence the arguments which contend for the abolition of export duties upon sulphur, in order to make it compete with pyrites. The State draws an annual revenue of some two million lire (2,000,000 francs = £80,000); and it cannot be expected to yield so legitimate a source of income, until at least assured by competent persons that the impost is a weight upon, and a damage to, Italian industry and commerce.”

To this very fair report Mr Consul Dennis adds: “I have no notion that the supply of Sicilian sulphur is nearly exhausted; more deposits are known than can be worked. There are many spots in the heart of the island which abound in the mineral, but it

¹ It would be better to state that sulphur costing above £5 per ton cannot at present compete with pyrites; sold below that price it would soon drive its rival out of the market.

must lie useless, for as yet there are no means of conveying it to the coast for shipment. The export of sulphur has been increasing greatly, it is true, from 100,000 tons (= £400,000) in 1855 to 200,000 (= £1,000,000) in 1871, but the export is regulated rather by the demand in foreign markets than by the supply. *The large quantity made from iron pyrites of late years in many European countries has, of course, much lowered the demand on Sicily.* In 1871 the quantities fell to 180,000 tons (= £956,000), but in 1872 they rallied to 192,000 tons. This quantity was thus distributed :

Great Britain and her colonies took	46,418 tons. ¹
France,	41,699 „
United States,	21,846 „
Germany and Austria,	22,348 „
Italy and the East,	47,160 „
Russia,	1,526 „
Spain and Portugal,	8,236 „
Other countries,	3,008 „
Grand total,	192,241 „

“I should remark that the quantities stated above are from the official returns of the custom-house ; they are probably understated to the extent of 25 to 50 per cent., few exporters declaring the full quantity or value, and the Doganieri having scant interest to verify the declarations. The amount exported last year (1873) was probably not much under 300,000 tons.

“The great rise of prices in the necessaries of life of late years, and the increased demand for labour, consequent on the construction of railways, harbours, and other public works, have doubled the price of sulphur in Sicily. But when the network of railways with which it is proposed to intersect the island is completed, when the country roads are laid out to feed them, and when the ports of Girgenti, Licata, and Catania, are enlarged and deepened, so as to accommodate vessels of large size, then it will soon be ascertained what treasures of sulphur Sicily still contains.”

¹ “Brimstone” in the *Mining Journal* (September 19, 1874) made England import in 1872 a total of 50,049 tons (= £336,216), but in 1873 only 45,467 tons (= £299,727).

In conclusion I would observe that this age of national armies and bloated armaments is not likely to allow decline in the use and the value of sulphur, and that nothing can be more unwise than to rely upon a single source of supply, Sicily, which might at any time be closed to us by a Continental war.

RICHARD F. BURTON.

NOTE ON THE COMPAGNIE SOUFRIÈRE OF THE RED SEA.

Schweinfurth ("Heart of Africa"), when passing down the Red Sea, speaks of the Sulphur Company at Guirsah. Its concession extends over 160 miles of coast southwards from Cape Seid. The ore is obtained from gypseous schiste; and all the fresh water for the workmen, of whom there are over 300, must be brought from the Nile.

I need hardly remark that if sulphur is found to pay under these circumstances, we may expect great things from Iceland.

SECTION VII.

SULPHUR IN TRANSYLVANIA.

According to Mr Charles Boner (p. 312, "Transylvania: its Products and its People," London: Longmans, 1865), the whole district round Búdós contains rich deposits of sulphur; and yet Hungary draws her supplies from the Papal States and Sicily; yielding, as the latter has hitherto done, a million and a half hundredweights per annum. So with sulphuric acid which has played so important a part in raising the industry of Europe to its present state. A single commercial house in Kronstadt employs nearly 300 cwts., and would probably use more were its price not so high. The sulphuric acid factory at Hermannstadt, the only one in the province, uses 300 to 400 cwts. annually. The custom-house returns for Tran-

sylvania vary from 300 cwts. to 3000 cwts., as the article comes sometimes from Trieste, sometimes from Vienna, where the duty has already been paid. In 1863, the amount of sulphur produced in the Austrian monarchy was 35,085 cwts., at an average price of 6*fl.* 44*kr.* per cwt. The consumption has regularly augmented owing to the increase in the number of soda factories: in 1858, the import from foreign states was 71,337 cwts.; in 1859, it was 86,673. Mr Boner has profited in the following remarks by two reports made by M. Brem, director of a chemical factory at Hermannstadt, and by Dr F. Schur, professor at Kronstadt:

“The sulphur-deposits are situated at the south and west of Búdös,¹ and not on the mountain itself. The places are Kis Soosmezö, also Vontala Feje Búlványos, and a little above the chalet Gál András. Thirty different diggings were undertaken in a circuit of at least eighteen miles; but the extent of the ground where the deposits are, is more than three times this size. The deposits run in unequal strata of from one to nine inches under the mould, which varies in thickness from one to three feet. The soil was everywhere saturated with sulphur, and in this permeated earth pieces of pure sulphur were found. They were of pale-yellow colour, fine-grained, and with a strong smell of sulphuretted hydrogen. Here and there only was a sort found with a certain hardness (cohesion), and even this, when dried, became brittle and ticturable. All this shows that the mineral is a true volcanic sulphur, and that the deposits will continue as long as the inner activity of Mount Búdös lasts. A careful analysis gives as result, in the earth taken in one place, 63·96 per cent.; in a second spot, 61·00 per cent.; and in a third, 41·01 per cent. of sulphur.”²

¹ Búdös is elsewhere described as a pointed cone of trachyte 3745 feet high, a solfatara or volcano, which, though never in actual eruption, incessantly pours forth streams of sulphuretted hydrogen gas, and these act as vents for the forces generated in the depths of the earth.

² The following is the analysis of the aluminous earth near Búdös:

Sulphuric acid,	51·59	per cent.
Water and sulphuric clay, } mixed with lime, }	3·54	„
Clay,	18·98	„
Silica,	14·00	„
Lime,	9·65	„
Potash,	1·00	„

“The district whence the earth was taken is a space of 16,000,000 square fathoms. Allowing for interruptions in the deposits, and taking these at an average thickness of three inches instead of nine, 200 lbs. of sulphur might be obtained from every square fathom, even if we suppose the earth to contain only 50 per cent. of the mineral. But we have seen that it has 61 per cent., and, in some cases, nearly 64 per cent. of sulphur. Continuing the calculation, the district would contain 16,000,000 cwts. of the precious commodity. Ten years ago, raw sulphur from Sicily and the Papal States (*viâ* Trieste) cost, in Hermannstadt, $9\frac{1}{2}$ florins per cwt. Competent authorities are of opinion that it might be produced here for 5 florins per cwt., inclusive of the carriage from Búdös to Kronstadt. Sulphur costs more than this in the places where it is produced in Poland, Slavonia, and Bohemia. Every year the demand for the article increases, for almost each year brings with it new appliances, and shows how indispensably necessary it is in the daily life of civilised communities. We all know what are the profits arising from chemical fabrications; and I think the facts here given will hardly fail to attract the attention of those who are willing to turn their knowledge and spirit of enterprise to account. For Transylvania at large, but for Kronstadt especially, it would be of the greatest advantage to obtain the article in question at a cheaper rate; for not only might undertakings, which, as yet, are but projects, be called into existence, but others already thriving be considerably enlarged.”

SECTION VIII.

EXTRACTED FROM “ADVENTURES AND RESEARCHES AMONG THE ANDAMAN ISLANDERS.” By FREDERIC J. MOUAT, M.D., F.R.C.S., ETC., ETC., ETC. Hurst & Blackett, Publishers, London, 1863.

The sulphur on the top of the cone occurs in such quantity in the cracks and fissures, often lining them to the thickness of

more than half-an-inch, that the question naturally arises whether the sulphur could not be worked with advantage.

Although in the immediate neighbourhood of the crater, where the fissures are numerous, the ground seems to be completely penetrated with sulphur; this is so evident in other parts, only a few feet lower, where the surface is unbroken. There are, however, some reasons which seem to promise that a search might be successful. In eruptive cones, like that of Barren Island, there is always a central tube or passage, connecting the vent in the crater with the volcanic action in the interior. In this tube the sulphur, generally in combination with hydrogen, rises in company with the watery vapour, and is partly deposited in the fissures and interstices of the earth near the vent, the remainder escaping through the apertures.

If in the present case we admit the sensible heat of the ground of the upper third of the cone to be principally due to the condensation of steam—a process of which we have abundant evidence in the stream of hot water rushing out from underneath the cold lava—it is not improbable that the whole of the upper part of the interior of the cone is intersected with spaces and fissures filled with steam and sulphurous vapour, these being sufficiently near the surface to permit the heat to penetrate. It is therefore not unlikely that at a moderate depth we should find sulphur saturating the volcanic sand that covers the outside of the cone.

I only speak of the outside, as we may conclude from the evidence we have in the rocks of lava in the crater, and those bulging out on the side, that the structure of the cone is supported by solid rock nearly to its summit, the ashes covering it only superficially.

From what has been said above, the probability of sulphur being found near the surface, disposed in such a way as to allow of its being profitably exhausted, will depend on the following conditions:

First, That the communication of the central canal, through which the vapours rise, with its outlets, be effected not through a few large but through many and smaller passages, distributed throughout the thickness of the upper part of the cone.

Second, That some of these passages communicate with the loose cover of ashes and stones which envelops the rocky support of the cone.

Although I have mentioned some facts which seem to indicate the existence of such favourable conditions, and which are moreover strengthened by an observation by Captain Campbell, who saw vapour issuing, and sulphur being deposited near a rocky shoulder, about two-thirds of the height, on the eastern descent of the cone; still their presence can only be ascertained satisfactorily by experimental digging. . . .

If a preliminary experiment should make it appear advantageous to work the cone regularly, the material about the apex, after being exhausted of the sulphur that is present, could, by blasting and other operations, be disposed in such a way as to direct the jets of vapour in the most convenient manner through uncharged portions of ground. If the sulphur should aggregate in periods of not too long duration, it would be possible to carry on the work of filling up new ground on one side, and taking away saturated earth on the other at the same time—so that, after working round the whole circumference, the earth that had been first put on would be ready to be taken away.

If the periods should prove too long to allow the work permanently to be carried on, an interval of time might be allowed to pass before resuming operations.

Water for the labourers could always be obtained from the warm spring at the entrance of the island.

The distilling, or melting, of sulphur, to separate it from adherent earth, is a matter of comparatively little expense or trouble. If the sulphur be abundant, it might be effected as in Sicily, by using a part of it as fuel. It is not necessary to do it on the spot; it might be done at any place where bricks and fuel are cheap.

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