

ISSN: 0036-9225 (Print) (Online) Journal homepage: http://www.tandfonline.com/loi/rsgj19

## An arctic voyager of 1653

### **David MacRitchie**

To cite this article: David MacRitchie (1909) An arctic voyager of 1653, Scottish Geographical Magazine, 25:8, 393-403, DOI: 10.1080/14702540908555055

To link to this article: http://dx.doi.org/10.1080/14702540908555055

-	

Published online: 30 Jan 2008.



Submit your article to this journal 🕑



0

View related articles 🗹

Full Terms & Conditions of access and use can be found at http://www.tandfonline.com/action/journalInformation?journalCode=rsgj19

# THE SCOTTISH GEOGRAPHICAL

### MAGAZINE.

#### AN ARCTIC VOYAGER OF 1653.

By DAVID MACRITCHIE.

(With Illustrations.)

In the year 1671 a dainty little duodecimo was issued from the bookshop of Louis Vendosme, in the Court du Palais, "proche l'Hostel de Mr. le Premier President, au Sacrifice d'Abraham," in the city of Paris. It announced itself as the record of a "Voyage des Païs Septentrionaux, dans lequel se void les mœurs, maniere de vivre, & superstitions des Norweguiens, Lappons, Kiloppes, Borandiens, Syberiens, Samojedes, Zembliens, & Islandois, enrichi de plusieurs figures"; and its author, the Sieur de la Martinière, dedicated the work to "Messieurs le Prevost des Marchands et Eschevins de la Ville de Paris." The book had a great popularity; and before the middle of the eighteenth century it had passed through at least seventeen editions, four of these being in French, and the others in German (six editions), Dutch, English, Italian, and Latin.

Of the author, Pierre Martin de la Martinière, something may be said. He was born at Rouen in the early part of the seventeenth cen-After qualifying as maître en chirurgie, he made several voyages tury. in Norman ships to Barbary, Guinea, and the East; and in 1653 he sailed from Copenhagen as surgeon on board one of the vessels of the expedition then despatched by Frederick III. of Denmark to the Far North of Europe and Asia. Thereafter he returned to France, where he resumed the practice of his profession. Sometime prior to 1671 he published his Histoire de l'Estat des Royaumes d'Alger, de Couque, & de Tetuan. He also wrote Le Prince des Opérateurs (Rouen, 1664, 1668), and a medical treatise published at Paris in 1664 and 1684. On 20th August 1671, the first impression was completed of his famous Voyage des Pais Septentrionaux, wherein he chronicles his experiences as a mem-

VOL. XXV.

2 F

ber of the Danish expedition of 1653. Why he waited eighteen years before producing the narrative is not apparent. But the circumstance of this long delay is well worth considering, in view of the adverse criticisms sometimes passed upon his book.

For although several writers, the famous Buffon included, have thought Martinière's statements deserving of citation, there are others who assert that his observations are "seldom accurate," and that the work contains "many marvellous tales." Nordenskiöld, indeed, while recognising the fact that "the account of Martinière's voyage exerted no little influence on the older writings relating to the Arctic Regions," does not hesitate to speak of "the large number of wonderful stories he narrates, without the least regard to truth or probability"; and the Swedish explorer thus sums up his French precursor—"He is the Münchhausen of the North-East voyages."<sup>1</sup>

Yet, although Martinière's good faith (or, perhaps one ought to say, the soundness of his memory) may well be called in question, it is obvious that Nordenskiöld is often most infelicitous in his selection of the passages which, in his opinion, prove that Martinière is untrustworthy. On more than one occasion he has simply misinterpreted his author's meaning, where it is quite sane and clear. On the other hand, he has overlooked some statements which seem to have a much more damaging effect upon the value of the book as a whole. Both of these points will be illustrated in due course. In the meantime it will be well to let Martinière speak for himself.

He begins by informing his readers that, in the latter part of February 1653, the directors of the Danish Northern Company pointed out to his Majesty Frederick the Third, that the trading operations of that company might be extended to the extreme north-east of Europe, and as far as Siberia, with advantage to the kingdom as well as to themselves. Accordingly, with the royal consent, three ships were fitted out "Being then in Copenhagen," says for an expedition in that quarter. Martinière, "and learning that His Majesty had ordered the members of the expedition to make precise researches in the countries where they touched, and, in order to arouse greater interest in these lands, to bring back as much as possible that was curious, I was impelled to seek out a friend of mine who was one of those chiefly interested, and to ask him to get me appointed by the Company as surgeon on board one of their This was accordingly arranged." Six days later he tells us the vessels. expedition sailed from Copenhagen, and, after several days of adverse weather, arrived at Christiania.

Although many of Martinière's statements have aroused incredulity and scepticism, the existence of this expedition has hitherto never been doubted. Before the close of the seventeenth century the book had been published thrice in French, twice in Dutch, once in English, once in Italian, and once (Glückstadt, 1675) in Latin; and neither then nor subsequently was the voyage regarded as anything but a matter of history. What Nordenskiöld characterises as "Martinière's easy style,

<sup>&</sup>lt;sup>1</sup> The Voyage of the Vega, London, 1881, vol. i. pp. 257-8.

contrasting so strongly with the common dry ship's-log manner, and the large number of wonderful stories he narrates," was alike the cause of the book's popularity, and of the suspicion with which it has been regarded by some. Nor must the fact be overlooked that the pictures with which the first edition is "enriched" are often very peculiar. Thev were executed in Paris by the publisher's direction, from sketches made by the author, with whose written description they are sometimes at And the executant has infused into the figures of Lapps and variance. Samoyeds a vivacity of gesture and a comic facial expression that has a startling effect upon the ordinary man of scientific mind. These quaint illustrations are undoubtedly to blame, in some measure, for the attitude of distrust with which the book is often regarded. Of the fourteen illustrations in the book four have been selected for reproduction in these pages.

In virtue of letters of recommendation to the Company's agents in Christiania, our traveller was taken to some of the objects of interest in One of these was the village of Wisby, three the neighbourhood. leagues from Christiania, built in the Lapp fashion, as he points out He was also present at an elk-hunt, and he incurs the later (pp. 41-2). scorn of Nordenskiöld by accepting the statement that the elk is subject to epilepsy. When, however, he was presented with the left hind-foot of an elk as a sovereign remedy against this complaint, his credulity "I replied with a smile," he states, "that I was reached its limit. astonished that, since the foot had so much virtue, the animal which owned it could not cure itself through the same means. Reflecting upon what I had said, this gentleman burst out laughing, and said that I was quite right."

After four or five days at Christiania, the flotilla sailed on by Stavanger to Bergen, "one of the most beautiful ports in Europe, eventually reaching Trondhjem. Here Martinière was invited to visit the neighbouring silver mines, which he describes in some detail. An incident on the return journey illustrates our author's complete freedom from "the common dry ship's-log manner" of other voyagers. In company with the master-miner he had sought shelter for the night in the home of a friendly peasant, who feasted them upon hare and pheasant,<sup>1</sup> washed down with brandy and beer. "After supper we set ourselves to smoking like dragons, and vying with each other in drinking brandy and beer, continuing this debauch nearly all night. The peasant seeing that the master-miner had got drunk to do him honour, was so delighted (fut tellement ravy) that he felt obliged to follow his example. In this condition they were laid upon a bed which was made for them in the middle of the room, and I placed myself near them, and waited for the dawn."

From Trondhjem the expedition was borne happily northward for some days by favouring winds, which, however, at length died away.

<sup>&</sup>lt;sup>1</sup> The words in the text are—"deux Faisans & un Lievre qu'il avoit tué il y avoit une heure à la chasse, laquelle est libre à chacun en ce quartier-ld." Although the pheasant had been then naturalised in Europe for many centuries, it is not unlikely that the birds in question were really faisans de montagne (grouse).

Then follows an incident which Nordenskiöld regards with incredulity. "Sailors are said to have purchased on the north-west coast of Norway for ten crowns and a pound of tobacco three knots of wind from the Lapps living there, who were all magicians: when the first knot was loosed, a gentle breeze arose, the second gave a strong gale, the third a storm, during which the vessel was in danger of being wrecked. The story of the wind knots is taken from Olaus Magnus, De gentibus septentrionalibus, Rome, 1555, p. 119," concludes the sceptical Nordenskiöld. It is possible that this was the case. On the other hand, it is much more likely that the transaction actually took place. The selling of winds, in the fashion described, is a very ancient custom among the Lapps; and Von Düben (1873) gives at length the rhymes sung by them on such occasions, sung by people who never heard of Olaus Magnus. Even among Caithness fisher-folk, according to the testimony of a writer in Folk-Lore,<sup>1</sup> the practice still exists. It is very ancient. The Greek traveller Pytheas found it in full swing at Cape Ushant in the fourth century before Christ. Martinière may have taken the story from Pytheas or from Olaus Magnus, but it is more likely that his Danish captain really acted in accordance with the ideas of his time and caste, and purchased the knots alleged to contain the wind. To believe this, however, is not to believe, as our author would have us, that the successive untying of these knots caused the gale which burst upon the voyagers at the North Cape, and separated Martinière's ship from her two consorts, "which, believing that they had perished, afflicted us greatly."

The vessel which carried our hero and his fortunes at length arrived, although in a battered condition, opposite the castle of Vardö, then held by a Danish garrison for the purpose of exacting dues from all foreign vessels passing towards or from Archangel. But the ship of the Danish Company sailed past unchallenged, in virtue of the salute fired from one of her guns and of the Danish colours flying at her peak. Thus they rounded the headland and entered the Varanger Fiord, coming to anchor about half a league from the town.

The experiences of the Danish traders in Lapland, and the author's descriptions of the Lapps, do not require to be followed here in detail. During the time that their vessel was repairing, after the severe damage sustained in the storm, Martinière and three of his companions achieved a journey by sledge along the Murman Coast, penetrating as far as the town of Kola. The main object of this expedition was to obtain, by barter and purchase, various Arctic furs from the natives. But Martinière loses no opportunity of describing the characteristics of the country;---the people and their customs, dwellings, clothes, reindeer, sledges and "These Lapps," he says, "although they are snow-runners or skis. Lutherans by religion, having priests to instruct them, have not abandoned their worship of the Devil, and are nearly all sorcerers; being so superstitious that if they meet an uncanny animal they at once go home and do not again leave the house all that day. Both men and women are of

<sup>&</sup>lt;sup>1</sup> London, 29th September 1903, pp. 300-306.

Their faces are broad, flat, tawny small stature, but strong and agile. and snub-nosed, but not so much so as the other Northern people (*i.e.* the Samoyeds and kindred tribes). They have pig-like eyes, the eyelids being strongly drawn back towards the temples. They are stupid, uncivilised, and very wanton, especially the women. Their dwellings are of wood, covered with turf, without any windows, being only lit by a hole in the middle of the roof. They are ornamented inside and out with 'fish-bones' (probably whalebone) and the tusks of walrus." He also describes a bird of prey of that region, new to him, which was obviously the Snowy Owl. It is impossible, however, to accept literally his statement that the Lapland dogs are so small that the largest is only a foot in length and one hand high !

At seven o'clock on the evening of the 26th of May, the Danish vessel sailed from Varanger, but an increasing wind obliged the voyagers to anchor off Vardö, where the Commis du Château came out in a small boat About one o'clock in the morning, just at sunrise, the to greet them. anchor was raised, and the voyage was resumed, the course being north-"We had not sailed thrice twenty-four hours," says north-east. Martinière, "when it seemed to us that there was no more night, as the sun was never lost to view, being always visible, ahead, astern, or abeam." The mountain-tops of Spitzbergen were sighted on the last day of May, but a tempestuous north-west wind arising, they ran before it in search of a shelter. For three days they held this course, steering their way through ice-floes, until, on the 4th of June, they sighted some lofty mountain-peaks to the eastward. The increasing violence of the north wind forced them, however, to make for the coast of Varandei, where they had the good fortune to find a natural harbour, protected from every wind. Our author speaks of this district as "Boranday," and of its natives as "Borandiens," but it is quite clear that he denotes the northern coast of the province of Archangel, where our modern maps indicate the bay and island of Varandei. In this haven, to their great amazement and delight, they found their two consorts, from whom they had been parted in the tempest at the North Cape. The reunion was celebrated with much manifestation of joy, cannon salutes being exchanged, and every flag flying. It then appeared that their comrades had been driven much farther to the east, as far as Yugor Straits (aux côtes de Iuhorski, proche d'une Isle), whence they had reached their present shelter.

It was now decided to land a party of twenty-five men, including Martinière, well armed and provisioned, with a view to explore the interior and to trade with the natives. Soon after landing, the explorers came to a village, where some thirty or forty of the inhabitants, armed with throwing-spears and bows and arrows, prepared to give them a hostile reception. But when they found that the invaders were peaceful merchants they became quite friendly. Their appearance is thus described :--- "On drawing near to them I was astonished to see that they were much smaller than the Lapps. They had the same kind of eyes, the whites of them being of a reddish-yellow tinge. Their faces were flat and broad, with snub noses, and their complexion was as tawny as possible. Their heads were big, and their legs thick. Their dress consisted of tight-fitting breeches, a coat reaching to the knees, stockings and a cap of white bear's fur, the hair outside, and shoes of bark. The women were as ugly as the men, and were similarly dressed. They hunt and fish just the same as the men [a statement made by Tacitus in the first century, with reference to the Baltic *Fenni*]. Their dwellings are very low, of oval shape, and are built of and covered with the bones of fishes. Daylight enters only by the doorway, which is shaped like the mouth of an oven."

The people here encountered were clearly a division of the Samoyeds, and Martinière's description agrees on the whole with the account of other writers; for example, with that of Giles Fletcher in 1588 (Purchas's Pilgrims, vol. iii. p. 413). However, our diarist prefers to style those people the "Borandiens," restricting the term "Samoyed" to their neighbours on the east and south-east. He represents the Borandiens as living in a condition very similar to the Lapps, and he describes some of them as wearing shoes of fish-skin like those worn by the Varanger people (pages 97-98). Their stage of civilisation, however, was lower than that of the Lapps, as they appear to have been un-They had flint knives, "which cut acquainted with the use of metals. like a razor," their arrow-heads, spear-heads, and needles were of bone, and instead of twine or thread they used bast. In short, they represented what certain archæologists call "The Neolithic Age."

From this point Martinière and some of his companions made a special expedition inland, which seems to have occupied three or four weeks. Their objective was a town called Papi-Novgorod, which I am unable to fix. The route indicated was up the Petchora River, and then up one of its tributaries, and finally across the Ural Mountains (*Les Monts Riphées*) into Siberia. But Martinière's geography is so uncertain that it is difficult, if not impossible, to follow him here.

On the return of this party to the ships, the expedition sailed on still further to the east in the direction of Zemlia, which they reached twenty This locality, Zemlia, furnishes Nordenskiöld with one of hours later. his most inept criticisms of Martinière. "Novaya Zemlya is stated to be inhabited by a peculiar tribe, 'the Zembliens,'" observes Nordenskiöld. As a matter of fact, Martinière makes no reference at this place to Nova Zembla. His descriptions relate solely to Zembla, or Zemlia, otherwise This name simply means "the land" or "the territory." Zemlaya. Until quite recently it denoted the Yalmal Peninsula. Probably it once included the whole of the Archangel territory. To-day, it still lingers on as the designation of the great stretch of *tundra* that extends on either side of the Lower Petchora, west and east, the former tract being known as Little Zemlia and the latter as Great Zemlia. Martinière's "Boranday" or Varandei is really a part of Zemlia, although he chooses to restrict the latter term to a specific part of the coast. It is pretty evident that his "Zemlia" was not so far east as Vaigatz; because he states that after the ships had lain at anchor for fifteen or sixteen days off the Zemlian Coast, while he and many others were recovering from an attack of scurvy, "nos Patrons voyans le temps beau se resolurent de lever l'anchre pour aller *plus avant* vers le Voygatt à la pesche du Wal-Rus."

When Martinière speaks of "Zemlia," therefore, he seems to denote a part of the Zemlian coast nearly south of Vaigatz.

In this matter of the walrus hunt, Nordenskiöld once more picks up "De la Martinière also got the head of a walrus," he a false scent. asserts, "which had been harpooned with great difficulty; the animal was drawn as a fish with a long horn projecting from its head." If Nordenskiöld had read his author with ordinary care, he would have seen that the marine animal in question was a narwhal, otherwise a Martinière's description of the narwhal *licorne de mer* (sea-unicorn). horn is most accurate and graphic :---"La corne de ce poisson que nous primes estoit bien de dix pieds de long, fort lourde, tournée en limaçon, grosse comme le bras en sa racine, vers la teste allant en raptissant jusques au haut, qui faisoit une pointe comme d'une aiguille." The narwhal horn could not be better described, if we discount a little exaggeration in his "grosse comme le bras." It is a natural spear, --- and used as such by the circum-Polar races, with a thong-handle inserted in the butt. As Kipling sings :---

> "The People of the Elder Ice Beyond the White Man's ken, Their spears are made of the narwhal horn, And they are the last of the Men."

That the Parisian artist who illustrated Martinière's book had a very vague idea of the appearance of a narwhal will be seen from his picture here reproduced.

Nordenskiöld follows his erroneous criticism of Martinière in this detail by another "As a equally inept. specimen of the birds of Novaya Zemlya," he says, "a penguin was drawn and described." As already pointed out, Martinière speaks of the Zemlian coast, and not of the island of Novaya Zemlya at all. As for the term "penguin," which Nordenskiöld seems to think belongs exclusively to the Southern Hemi-



FIG. 1.-A Narwhal hunt.

sphere, it is an old name for the great auk (*Alca impennis*), although we now associate it only with the true penguins (Spheniscidæ) of the south.<sup>1</sup> For example, a writer of the eighteenth century (Cartwright, 1792)

<sup>&</sup>lt;sup>1</sup> A very amusing discussion of the question as to whether the French word "pingouin" can or cannot be applied to the auks will be found in the preface to Anatole France's satirical romance,  $L'\hat{l}e$  des Pingouins. M. France's "pingouins," which lived in the Arctic, are certainly auks.—ED. S.G.M.

describes having seen an Eskimo in his kayak chasing a "penguin" in the sea near Fogo Island, Newfoundland, in 1771; and there can be no doubt that this is the great auk, of whose skin, according to Pennant, the Eskimos of Southern Labrador and Newfoundland made garments. Martinière's own description of those "penguins" of Arctic Europe is familiar reading to any modern Antarctic voyager. He relates how he and his companions knocked the birds over with their sticks, because they were scarcely able to fly; and he adds, that when preparing them for food, "we were obliged to flay them, their skin being so hard that the feathers could only be plucked out with great difficulty : the flesh is very good, tasting like wild duck, and very fat." Nordenskiöld apologises to his readers for introducing these references to Arctic "penguins" and to narwhal horns: "I refer to these absurdities," he explains, "because the account of Martinière's voyage exerted no little influence on the older writings relating to the Arctic Regions." He had not realised that the absurdities consisted in his own erroneous interpretation of the text.

It is impossible, however, to say anything in defence of the "fearful wildfowl" which does duty for a penguin in Martinière's pages, but I reproduce the figure here for the amusement of the reader.

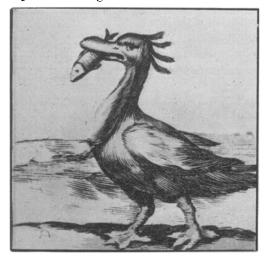


FIG. 2.—The Great Auk; as imagined by a Parisian artist in 1671.

The vessels now returned to a part of the coast where, as the narrative had duly chronicled, some of the natives had been seen engaged in worshipping the sun,---a rite practised by the Samoveds and other Arctic races. Bearing in mind their king's instructions to bring back some of the natives, if possible, the Danes here launched four boats for the purpose of exploration, and with some hope of again encountering the natives. "We had not long quitted our ships," says Martinière, "when we saw a

native in his canoe, about half a league from land. As soon as he saw us coming towards him, he rowed with such force that it was impossible for us to get near him. And, on reaching the shore, he, with great swiftness and dexterity, lifted his canoe upon one shoulder, and holding his bow and his spear in the other hand (his quiver being on his back), he sped away."

In trying to represent this scene, the artist has once more proved himself unworthy of his subject. He has not even attended to the author's statement that the fugitive carried his bow and his spear in one hand, and that his quiver was on his back. And he has portrayed two small paddles, impossible to be used by one paddler, instead of the long double-bladed paddle by which the canoe must have been propelled. As for the canoe itself, it is manifestly incorrect.

This incident is of great interest.  $\mathbf{It}$ tallies with the account of the natives of that coast given almost a hundred years earlier by the English navigator Burrough, from personal observation. "Their boates," he says, "are made of deers skins, and when they come on shoare they carry their boates with them upon their backs."<sup>1</sup> From the united accounts 0 Burrough and Martinière, and from further evidence supplied by



FIG. 3.-A fugitive Zemlian, with his canoe.

the latter, it becomes quite clear that these skin canoes of the Zemlians or Samoyeds were exactly the same as the long, slim, swift "kayaks" which are still in use along the coast of North-Eastern Siberia and all round No other skin canoe, which could be used the shores of Arctic America. with safety a mile and a half from land, could be propelled more swiftly than a well-manned rowing-boat by a single paddler. That the canoe referred to by Martinière was a one-man kayak is evident from his He tells us that after the fugitive Zemlian had further remarks. succeeded in making his escape, the four Danish boats, on their way back to the ships, encountered another native canoe in the open sea. By skilful manœuvring, the Danes managed to capture this canoe, with its occupants; for there were two, a man and a woman. He describes their tiny craft in terms which leave no doubt as to its real nature. "The canoe was made in the style of a gondola (fait en gondolle), being fifteen or sixteen feet long by two and a half feet broad, very cleverly constructed of fish ribs (baleen or whalebone, presumably) covered with fish skins (probably sealskin) stitched together, thus making the canoe a Within it the two were purse, as it were, from one end to the other. enclosed up to the waist in such a manner that not a single drop of water could get into their little vessel, so that they were enabled to expose themselves to every tempest without any danger." Every one who knows the appearance of the North American and East Siberian skin canoe will at once understand this description.

<sup>&</sup>lt;sup>1</sup> Hakluyt, first edition, p. 318.

The occupants of this canoe are thus described by our author: "Their clothes were all of seal-skin, with the hair outside, their coats being made of two skins sewn together, the tails hanging down in front and behind to the thighs, and with narrow breeches. The man was about fifty, and had a chestnut-coloured beard. The woman seemed to be thirty. Her hair hung in two plaits down her shoulders, her chin and forehead were tattooed with blue lines, and her nose and ears were pierced and ornamented with blue stones. All their stitching was done with ligatures of fish-skin, and their needles, the points of their darts and arrows, as well as their other instruments, were of fish-bone." These sealskin coats were necessary, to throw off the spray when the kayakkers were at sea. But two other natives, captured on shore a few days later, wore penguin-skin coats, like some of the Greenland and Labrador Eskimos, and like the Samoyeds encountered by the English traveller Gourdon in 1611.

The accounts of Burrough and Martinière are of great value as showing that the skin kayak was in use in Aretic Europe in the sixteenth and seventeenth centuries. Martinière's description of what may be called the "tandem" kayak—that is, a kayak with two manholes—is especially noteworthy. So far as I am aware, kayaks of this description have only been reported by other writers as used along the Arctic coasts of North-Eastern Siberia and North-Western America. Altogether, the picture given of the seventeenth-century inhabitants of the "Zemlian" coast, suggests a type more closely in affinity with Alaskan Eskimos than are existing Samoyeds.

In the end of August the expedition quitted Zemlia, and, driven by the wind in a north-westerly direction, arrived off the coast of Spitzbergen. Martinière calls it "Greenland," but his Arctic geography is very confused, and moreover the Greenland coast could not possibly have been attained in the time indicated. Here they found a number of French and Dutch whaling-ships, and our author refers to their method of rendering the oil, and to their temporary habitations on the beach. At this date Spitzbergen was the headquarters of Arctic whaling; and, consequently, these descriptions in the narrative are quite in agreement with known facts.

The same thing cannot be said, however, with regard to Martinière's next statement; and here Nordenskiöld might have found better cause for scepticism than in his crude observations on narwhals and penguins. For Martinière states that, after two days at Spitzbergen ("Greenland"), the expedition once more set sail, and two or three days later sighted the volcano of Hecla, then in eruption. As the ships were driven before a violent tempest, the time allowed for sighting the flames of Hecla may But a question of much more importance is this—Was be sufficient. Hecla active in 1653? According to Arngrim Jonas it was quiescent between 1636 and 1693. That writer's record of the eruptions differs, however, from Von Troil's chronicle; and there seems to be room here for a very close examination of the facts. Undoubtedly, the authenticity of Martinière's account depends much upon this detail. If a positive statement such as this regarding Hecla can be proved to be false, then his whole narrative must be placed in the same category as the voyage of Robinson Crusoe; and all Martinière's descriptions sink into a clever, an extremely clever, dove-tailing of bits of information obtained from others, —although we should still have to ascertain the source of his accurate description of a two-holed kayak. Any minor inaccuracies in the book could be explained as due to the lapse of time between 1653 and 1671, the date when the narrative was published. But the validity of the whole is vitally affected if Hecla was not in eruption in 1653. This, however, remains to be proved.

In the last chapter of his book, Martinière protests against the erroneous Arctic cartography of various celebrated authors, and he

maintains that one could travel by land from Russia Greenland,  $\mathbf{to}$ through Zemlia. The map intended to elucidate his statements, which is here reproduced, is a bewildering study. It is impossible to reconcile several of the passages in the narrative with the situation of Zemlia as defined in this map, and with the author's explanations at this point. In the foregoing synopsis of the voyage, I have endeavoured to interpret the written account so as to bring it into agreement with geographical facts.

The narrative con-

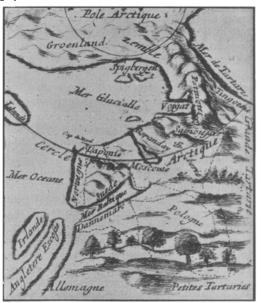


FIG. 4.-Martinière's conception of the Arctic Regions.

cludes with the return of the expedition to Copenhagen, where the captive Zemlians and two narwhal horns were presented to the King, who commanded the latter to be placed in his treasure-chamber. Possibly they form part of the throne of narwhal ivory which stands to-day in the castle of Rosenborg.

#### VALLEY TRACKS AND VEGETATION.

By G. F. SCOTT ELLIOT, M.A., B.Sc., F.R.G.S.

THOSE alluvial lands which are probably the richest and most abundantly yielding of all soils in the world are produced by an interesting if