

See, and his brother C. *Ecdicius* Mamertus seems to have been closely connected with it; indeed, he seems to have composed music for the choir. We are warranted in conjecturing that this family must have had intimate relations with that of Avitus. The name of the author of the Homily is A. *Ecdicius* Avitus; Sidonius Apollinaris was son-in-law of the Emperor Avitus, and his intimacy and correspondence with "Lord Patriarch Mamertus" confirm the supposition.

We have seen that M. M. Avitus went to Rome as Emperor, A.D. 455. The first time we hear of Mamertus as Bishop of Vienne is A.D. 463. What, then, is the probability of the following facts?

When Avitus went to Rome, he took with him many of his intimate friends and connections, and among them St. Mamertus. He obtained for Mamertus some Italian See, of which the principal town was situate at no great distance from Vesuvius. It was walled, had a large forum, and was partly inhabited by the nobility of the country. Upon the expulsion of his patron, Mamertus exchanged to the See of Vienne, or obtained that See by some other means. During the short time he was in Italy he witnessed those earthquakes and showers of ashes described in the letter and the Homily.

Assuming these facts, how will they agree with the statements in these documents, and with the known history of Vesuvius?

It is clear, from the letter of Sidonius, that the reason why the people of Auvergne observed the Rogations was not the fear of earthquakes, but of the incursions of the Goths, against whose advances they formed the chief barrier; they lived in the midst of the "surrounding terrors," yet Sidonius himself had to make inquiries and get information (*Sciscitatio*) in order to become acquainted with the volcanic phenomena: he nowhere says that "the city divinely committed to Mamertus" was Vienne, and all the circumstances are connected with Mamertus personally, and with a town only through him.

St. Avitus succeeded his father A.D. 490, and died A.D. 525. At what precise date he wrote the Homily I suppose is unknown; it may, perhaps, have been written before he was Bishop. The date of his birth seems to be unknown, but he may very well have been old enough to have been with his father in Italy, and as a youth have witnessed the phenomena that were seen by Mamertus; and in the congregation that listened to the Homily, there may still have been "many" who had been there also (with the army?), and had also seen them.

The words "at that time" mean that the earthquakes, &c., occurred at the same time with the attacks of the Goths on the inhabitants of Auvergne and Vienne.

One astonishing circumstance is that the Rogations, though instituted (in Gaul at least) by Mamertus, say between 456 and 463, had already obtained in "nearly the whole world;" evidently no such rapid and wide extension could be due to the fear of earthquakes; but it is easily understood, if they were considered to be a protection against the attacks of barbarians; the time of their celebration shortly before Whitsuntide would, I suppose, be about the time of preparation for the usual summer campaign.

But how account for a Bishop of Vienne instituting at Vienne a ceremony which is alleged to have been occasioned by events that happened in Italy? Thus:—Mamertus, who had no previous knowledge of volcanic action, would be greatly struck by what he saw; and even to the Italians these manifestations were probably a novelty. Vesuvius had been comparatively quiet for 200 years, and these (by hypothesis) were among the first intimations of that renewed fury which reached its climax in 472, and is mentioned by Procopius (I have no access to his work).*

Struck with terror, the idea of the Rogations occurred to him while in Italy, possibly he may have instituted them there; but it agrees better with the claim of Vienne to suppose that before he had the opportunity of carrying out his idea, he found himself again in Vienne, and first instituted them there, not against earthquakes, but against the barbarians.

The two things together, the earthquakes and the wars, suggested to him the possible approach of the awful time indicated by Christ (Matt. xxiv. 15)—"Cum ergo videritis abominationem desolationis," &c.; hence the "abominabilia" and the "doom of desolation" of the Homily. The "magna tribulatio" would well agree with the constant wars, and the "infectible distress" occasioned by them.

Norwich, June 5

HENRY NORTON

* A few days after writing this I read the passage in Procopius, and found that he expressly attributes the institution of Rogations to the action of Vesuvius.

The Wanderings of the Esquimaux

It is very gratifying to find that Mr. Howorth, whilst holding the position he has taken up with augmented force, has accepted, in the same kindly spirit in which they were written, the observations on the migrations of the Esquimaux which I was led to make after reading his very excellent letter in NATURE of May 9.

Mr. Howorth now brings forward the language of the Esquimaux in support of his views. This may be a strong point, although, if I remember rightly, one or two distinguished ethnologists think differently. As for myself, having little or no knowledge of languages, I can express no opinion one way or other.

Open as I am and shall be to conviction, and ready to give up my opinion cheerfully if proved wrong, I find that so far, the able arguments brought forward by Mr. Howorth have not in the slightest degree unsettled my belief in the truth of the Esquimaux tradition, communicated through interpreters whose competence I proved in a very satisfactory manner, at the same time that I ascertained the reliability to be placed on information transmitted from one to another by the Esquimaux. This I did by comparing information given by the natives of Repulse Bay, through my interpreter, with portions of the narratives of Arctic explorers of distinction (with which it agreed very closely) written in the one case more than twenty, and in the other more than thirty years before; of course neither the Esquimaux nor the interpreter knew what was in these narratives.

Mr. Howorth quotes numerous authorities, and I have no doubt does it so correctly that there is no necessity to look them up. These I shall now endeavour to answer, and as nearly as possible in the order in which they appear in his letter.

I do not think that the fact of the "Arctic Highlanders" building "stone igloos instead of snow huts," or their "ignorance of boats, either kayaks or oomiaks," makes any "broad distinction" between these people and the "American Esquimaux."

In the far west, that is, from Behring Strait to the Mackenzie River, the Esquimaux live in wooden houses during winter, probably because driftwood is abundant. They also have both kayaks and oomiaks.

As you go eastward and get near the Coppermine River, snow-huts form the winter shelter, probably because little or no wood is to be found, and a stone house without fuel to make a fire, is, as I know by experience, much colder and more comfortable than a snow-house under the same circumstances. The food of these natives is principally reindeer, musk cattle, and fish, with some seals, but neither whales nor walrus, as far as I could learn, to give fat for fuel. Here, also, the oomiak or large luggage boat disappears, it may be because the Esquimaux are less numerous, more scattered, and live in smaller communities, and do not require it. Another reason may be that the sea is more ice-encumbered. The kayak is, however, still in use, and when it is requisite to transport a family or a heavy load across water, two or more of these are fastened together, poles or paddles laid across them, and thus a kind of platform is constructed, which will carry very considerable weights in perfect safety.

This state of things prevails as far eastward as the great Fish River, Boothia, Gulf Committee, Repulse and Hudson Bays, but as the Esquimaux travelled northward to latitudes 76° and 77° by the route I have supposed them to do, as described in a former letter, the difficulty of building kayaks would be increased in consequence of scarcity of wood to make the frames.* The necessity for them would also become less, as the sea became less free from ice, and if, as I suppose, they chiefly hunted and lived upon reindeer and musk cattle. The usual season for killing seals is before the ice breaks up, so no kayak is required for that purpose.

From the description given me of the numerous "moss-grown ruins of deserted huts" seen near Smith Sound and on the Parry Islands, I am led to believe that many of them were not dwelling places at all, but the ruins of large stone "caches," such as are found in many places on the shores of America, where the natives have collected a quantity of provisions, round which stones are built in a very solid manner as a protection against the attack of the fox, the wolf, their own dogs, and, worst of all, the wolverine.

Let me now say a few words about the Arctic Highlanders of

* In 1846 the Esquimaux of Repulse Bay had plenty of wood, but in 1854 many of them, who had been hoarding up seal skins for the purpose, could not build kayaks, because they had no wood to make the frames of.

North West Greenland. I suppose these build their igloos of stone because they have no wood, and prefer this kind of house to a snow hut, because the walrus which they kill in great numbers, and which, according to Drs. Kane and Hayes, forms their principal food, affords abundance of fat for fuel. A stone house with fire is warmer than a snow hut without it.

As the Esquimaux, of all people I have ever met with, most readily adapt themselves to circumstances at very short notice, I believe that these Arctic Highlanders could under every difficulty build kayaks for themselves, were they absolutely necessary, otherwise how can we account for the Esquimaux in the south of Greenland (whom Mr. Howorth believes to be the descendants of these Arctic Highlanders) having built both kayaks and oomiaks almost identical in form and construction with those in use among the "American Esquimaux" of Behring Strait and the Mackenzie, several thousand miles distant, with whom they could have no direct communication? This has always appeared to me a very curious circumstance difficult of solution, except by supposing that the "Skrælings" crossed Davis' Strait at its narrowest part from Cumberland Island to Greenland, a distance of 200 geographical miles—a theory which I do not think so probable as the one I have already advanced.

"The Arctic Highlanders have become alarmed at the rapid diminution of their numbers through famine and disease."

This feeling is not peculiar to the Arctic Highlanders, for both at Repulse Bay and at the Coppermine River a very similar story was told me.

Between 1847 and 1854, the dates of my two visits to Repulse Bay, forty or fifty of my old friends in that neighbourhood—men, women, and children—had died in one season, and nearly all from starvation, caused, I was told, by one of those erratic migrations of animals I have already mentioned.

Although there is every probability that the musk cattle, of which skulls are found scattered along the shores of Smith Sound, had been killed by the Esquimaux, the "absence of the lower jaws" is no proof that they were so killed. Wolves, foxes, or bears, would carry off these lower jaws and very likely "break them up," but the head itself would be rather an uncomfortable burden for the two first-named animals, and would not afford much nourishment to Bruin, and even his strong teeth would find an old musk bull's skull rather a hard nut to crack if he did attempt it.

"The American Esquimaux never go from their own hunting-grounds for any distance to the inhospitable north."

It is very difficult to define what "any distance" may mean, but I have known them go several hundred miles in one season to look out for fresh hunting-grounds or seas, either north or south, and if they find game they remain there. If the game moves away, the Esquimaux will follow it, whether north or south, if not stopped as trespassers by some of their own countrymen who have had previous occupation.

When I went to Repulse Bay in 1853, I was surprised and disappointed at finding no Esquimaux—for we wanted dogs from them—where a very considerable number had been in 1846-7. In the spring (1854) we found that none had wintered, as far as we could learn, within 200 miles of our winter quarters. The Chippewyan legend told by Sir John Franklin is well known to the Hudson's Bay Company's people.

The Indians resorted in old times to the deposits of native copper on the Coppermine River to obtain that useful metal, with which to make spear and arrow heads, &c.; and it was probably on one of these occasions that an Indian woman may have been carried off "across the sea" to Victoria on Wollaston Land, some points of which are within sight of and at no great distance from the Continent. Very likely, instead of being kept in slavery, some good fellow made her his wife, and treated her as such, much more kindly than she would have been treated among her own countrymen.

In fact, although the habits of the Esquimaux near the Coppermine have nothing of the Indian in them, the face and form of several that I have seen differ widely from the true Esquimaux type, thereby indicating a mixture of blood or races.

That admirable traveller and keen observer, Mackenzie, "certainly knew the country well," but he did not know much of the Esquimaux, for the simple reason that he had very little opportunity of becoming acquainted with them. As an authority on anything relating to the Indians, either east or west of the Rocky Mountains, no man could be more reliable.

Mackenzie says at p. 406 of his book, "They (the Esquimaux) never quit the coast." I think Sir Alexander Mackenzie meant by this that they never went inland; the only interpretation

which would, I think, give his opinion any weight. If in saying "they never quit the coast," he meant that they never crossed the sea or ice to other lands or islands to the north, which he by his own observation could not possibly have known, it would be in perfect contradiction to the Chippewyan legend of the woman being carried across the sea, &c., and to our present knowledge.

It is not at all necessary for the American Esquimaux to cross Behring Strait to enable them to obtain articles of Russian manufacture from the Tchuktchi, nor for these to cross over to America for this purpose. A number of Russian trading-posts have for very many years been established in Russian America (now Alaska), and these traders have carried on a large and direct traffic in articles of Russian manufacture with the Tchuktchi and Esquimaux.

It is that very "fragment" of so-called Tchuktchi, of Tchuktchi Ness, found in the extreme north-eastern part of Asia, and a few of the Kamtskatkans, whose language, custom, or physique resemble, to some extent, those of the Esquimaux, which I humbly think give strength to my belief in the original eastward migration of those curious people.

That there may have been a subsequent re-migration, so to speak, of Tchuktchi from America westward across Behring Strait to Asia, is, I think, very probable.

The Esquimaux and Tchuktchi of America, although they meet to trade for mutual advantage, are by no means friends, for they are (or were very recently) often at war with each other.

I can scarcely think that the American Esquimaux have been "sophisticated" by contact with the Indians. At the present time they differ from the Indians in every particular. In their dress, in their manners, in their mode of pitching their tents, of cooking and eating, fishing and hunting, in the form of their fish spears and hooks, in sewing, in the way of treating their wives, &c. Indeed, even at Churchill, where they come much in contact with the Indians, they seem to have acquired none of their habits or customs.

This letter has increased in length far beyond the limits I had contemplated, and I am almost ashamed to forward it to you with any hope of its finding a place in the columns of NATURE, but I felt almost bound to write something: first because an answer of some kind was required to the several arguments so well and ably used by Mr. Howorth, and secondly because I wished to comply with the hope he so pleasantly expressed that I would bring onward some more facts on my side.

JOHN RAE

The Aurora of Feb. 4

In the February number of NATURE just to hand I find an interesting account of this aurora. It may interest your readers to know that a very fine aurora was visible at Eden, 230 miles south of Sydney, at the same time. The notice sent me states that the aurora was visible from 1 A.M. to daylight of Feb. 5 (i.e. from 3 P.M. to 7 P.M. Feb. 4, Greenwich time); the auroral light extended from S.E. to S.W., and to an altitude of 60°. No other particulars were sent by the person who saw it; but it would appear that the auroral display must have commenced before it was observed in Europe.

H. C. RUSSELL

Sydney Observatory, May 15

THE ZOOLOGICAL STATION AT NAPLES

LETTERS from Naples inform us that the construction of the building for the Zoological Station is now advancing rapidly. As the building is close to the sea, the foundations had to be laid with especial care, the more so as the heavy pressure of the aquarium tanks, the laboratory tanks, the library and the collections, would require even on ordinary ground some precaution.

We are glad to hear besides that Dr. Dohrn is most effectively assisted in the technical parts of the construction by Mr. W. A. Lloyd, of the Crystal Palace Aquarium, Sydenham. This gentleman, having been in friendly relations to Dr. Dohrn some years ago, when still in Hamburg, has obtained from the Board of the Crystal Palace Aquarium permission to render all possible help to the Naples station, as to an institution of a purely scientific character. Whoever knows the technical difficulties of