

soundings, the character of a ridge running from the north of Scotland to the Faroe fishing banks, and separating, at depths exceeding 300 fathoms, the cold Arctic water with a temperature about 32° from the so-called Gulf Stream water on the Atlantic side with a temperature of 47° F. This ridge was traced in considerable detail by means of cross soundings directly across the channel, and the top was found to be on an average about 260 fathoms, beneath the surface. In the northern half of the ridge, however, a small saddle-back was found with a depth of a little over 300 fathoms, through which some of the Arctic water seemed to flow and to spread itself over the bottom on the Atlantic side of the ridge. The top of the ridge is entirely composed of gravel and stones, but mud and clay are found on either side at depths exceeding 300 fathoms. Many of the stones are rounded, and some of them have distinct glacial markings. They are fragments of sandstone, diorite, mica-schist, gneiss, amphibolite, chloritic rock, micaceous sandstone, limestone, and other minerals. The ocean currents here appear to be strong enough, at a depth of between 250 and 300 fathoms, to prevent any fine deposit, such as mud or clay, being formed on the top of the ridge. All the indications obtained of the nature of this ridge, seem to imply that it may be a huge (terminal?) moraine.

It is worthy of notice that the "Wyville Thomson Ridge" is only a little to the east of the position marked out by Croll from the observations of Geikie, Peach, and others, as the probable limit of the perpendicular ice cliff formed in North Western Europe during the period of maximum glaciation.

The dredging captures show the same marked difference as had previously been pointed out in the fauna of the two areas; those in the cold area being of a distinctly Arctic character, and those in the warm area resembling the universally distributed deep-sea fauna of the great oceans. A fair proportion of new species were also found.

The last trip of the *Triton* took place from Oban, on the 11th September, to the deep water in the Atlantic westward of Ireland. The object of this trip was to get *directly* a determination of the pressure unit of the gauges employed in testing the *Challenger* thermometers. The original determinations were made *indirectly* by the help of Amagat's results as to compression of air. The observations taken are not yet reduced, but several successful trials were made at depths of 500, 800, and 1,400 fathoms.

(To be continued.)

M. MIKLUKHO-MACLAY ON NEW GUINEA

ON October 11 M. Miklukho-Maclay gave, at the Russian Geographical Society, the first of a series of lectures on his sojourn in New Guinea. These lectures have attracted great audiences. His remarkable collections of household articles and implements of Papuans and of various tribes of the Malacca Peninsula, and the many drawings reproducing scenes of the life, dwellings, graves, anthropological types, &c., of the natives, are exhibited in the rooms of the Geographical Society, and attract many visitors.

M. Miklukho-Maclay left St. Petersburg in 1872, and went on board a Russian ship to New Guinea. He expressed the wish to be left there for at least a year, and it was fifteen months after his being landed that he was taken up by a ship which brought him to Batavia. His stay in New Guinea was beset with difficulties. He lived in a small hut, was short of provisions, which he had to supply by hunting, and his health was quite broken down. But he entered into very close relations with the natives. In Batavia he stayed for several years, and published (in German) the results of his anthropological and ethnological observations among the Papuans, on the Brachycephaly of the same, and on the climate of the "Maclay-coast" in the Batavian scientific journal, *Natuurkundig Tijdschrift voor Nederlandsch Indië*. A paper (in French) on the Vestiges of Art among the Papuans appeared in the *Bulletin de la Société d'Anthropologie de Paris* for 1878. In 1876 he undertook a new journey on board the English schooner *Sea Bird*, and visited the Yap, Pelau, Admiralty, and Ninigo Islands, and went again to the coast of New Guinea, to which his name is now attached. An account of this journey has appeared in the *Izvestia* of the Russian Geographical Society and in *Petermann's Mittheilungen* for 1879. During this second sojourn in New Guinea M. Miklukho-Maclay was lodged more comfortably, and was enabled to pursue scientific investigations (anthropological measurements and anatomical researches) with less difficulty. He also explored

in a canoe, with natives, the coast of New Guinea between Cape Croaz and Cape Teliatia. Having undertaken his adventurous journey on his own account with but a little occasional support from the Geographical Society, M. Miklukho-Maclay was often in difficult circumstances; but a few years ago a public subscription was opened by the Russian papers, and the Russian Society immediately came to his aid, thus enabling him to continue his researches.

When in search of a place at which to study the customs and life of the primitive people at the lowest stage of culture, M. Maclay chose the north-western coast of New Guinea, close by Astrolabe Bay, which was never visited before by Europeans. Neither Dampier nor Dumont D'Urville, who both passed close by, had landed there. He built his hut between two Papuan villages, on a promontory that was occupied by nobody. At the beginning the Papuans wished him to go back whence he came, and obstinately showed him the sea; sometimes they launched their arrows close by him, but without wounding. By great endurance however, by his good nature, and especially by a continuous self-control and severe watching over his own actions, M. Maclay soon won the confidence of the natives. He always strictly kept his word, even in the most insignificant circumstances, and therefore had afterwards the satisfaction of hearing the natives saying "*Balan Maclay hooi*" ("The word of Maclay is one"). The natives used to call him *Kaaram-tamo*, "The Moonman," partly on account of the supernatural capacities they ascribed to him, and partly on account of his having once, when searching for something about his hut in the night, lighted a white signal-fire that was left from the ship which brought him. The first visits of M. Maclay to the Papuan villages were a source of great trouble among the natives; the women were concealed and the men seized their arms. M. Maclay used then to announce beforehand his arrival by loud whistling, and the natives concluded he did not wish to do them harm. By and by he won the confidence of the natives to such an extent that an attack of a hostile tribe having been expected, his neighbours brought their women and children to his hut, to be under his protection. The war was thus prevented, and the authority of the "Moon-man" was sufficient to prevent further wars.

The natives of this coast are at the lowest stage of culture. Before M. Maclay's arrival they did not know the use of metals, all their implements being made of stone, bones, and wood. They did not even know how to make fire. If the fire were extinguished in a hut, it was taken from another; it would be taken from a neighbouring village if extinguished in all the huts of the village at once. Their grandfathers told them of a time when they had no fire; then they ate their food quite raw, and a disease of the gums spread among them. They do not bury their dead. The dead are put in a sitting position, the corpse is covered with leaves of the cocoa-palm, and the wife must keep a fire close by him for two or three weeks, until the corpse is dried. Corpses are buried only if there is nobody to keep the fire.

M. Maclay left the Papuans with regret, when a passing schooner took him, in 1878, to Singapore. He expects for his friends the fate of the inhabitants of the Melanesian Archipelago, where the population rapidly diminishes on account of the "kidnapping" of men and women to sell them into slavery, which is practised to a great extent by crews of ships of all nationalities of the civilised world.

In his second lecture, M. Miklukho Maclay gave further information with regard to the Papuans of New Guinea. Previous anthropologists had admitted the existence of at least two different races in New Guinea, and had made a distinction between the Papuans inhabiting the coast and those of the interior. After several visits to New Guinea, as well to the coast, as to the interior, M. Maclay came to the conclusion that this supposition is not correct. The Papuans of the interior belong to the same race as those of the coast, and there is throughout New Guinea but one single Papuan race. Virchow found it also necessary, on the ground of craniological measurements, to distinguish the Papuans from the Negritos of the Philippine Islands, and to admit that the former are dolichocephalic, and the second brachiocephalic. Hundreds of measurements made by M. Maclay brought him to the conclusion that both types have their representatives even among the purest Papuans of the Maclay coast, and that the transversal diameter of the skulls of Papuans varies everywhere within so wide limits (62 to 86 per cent. of the length of the skull), that no classification can rest on this feature. It was stated also that a special

feature of the Papuans which distinguishes them from other curly-haired races, is that their hairs grow in clusters, separated from one another by sinuous spaces devoid of hair. Extensive researches proved, however, that this cluster-like disposition of hairs does not exist among Papuans, not even among children. Finally, several anthropologists considered the diameter of the curls of the hairs as a feature that may help to establish a distinction between the Papuans and the Negritos; these last have been supposed to have smaller curls than the former, that is, no more than one or two millimetres wide. M. Maclay found, however, that the diameter of the curls of the Papuan also does not exceed one and a half millimetre, and that it varies very much in different parts of the head, so that this feature cannot be taken as a basis for anthropological classification.

After having taken some rest at Buitenzorg, M. Maclay left Batavia in January, 1873, for a third visit to New Guinea. The Malayans of Celebes have carried on an intercourse with New Guinea for more than three or four hundred years; they go there, as well as the inhabitants of the islands Lant, Seram, and Key, for the purchase of slaves, turtles, trepang, and pearl shells. To establish closer relations with the natives, the Malayans of Celebes bring with them Malay girls, give them as wives to the Papuans, and export in exchange Papuan girls who are married in Celebes. (These relations were described by P. A. Leupe in the "Bijdragen tot de Taal-Land en Volkenkunde van Nederlandsch-Indie" for 1865.) Therefore it is impossible to find pure Papuans on the Papua-Onim and Papua-Notan coasts, and M. Maclay took the resolution to go to the Papua-Koviag coast. The inhabitants of this coast have a very bad reputation as robbers and anthropophagi; but still, M. Maclay hired a Malayan "praw," or "urumbay," that is, a boat thirty feet long, and, with a crew of two Christians from Amboyna, and fourteen Malayans and Papuans, he left the islands Seram-Lamut, and reached the Koviag coast. Triton Bay (where the Dutch had formerly a military settlement) proved to be a beautiful strait, to which M. Maclay gave the name of the Russian Grand Duchess Helena Pavlovna. He discovered also another bay that separates the island Namatote from the mainland of New Guinea. He stopped at Aiva, between these two straits, and his men immediately erected a hut from the "ataps" (a kind of mat made from leaves of the tapioca palm) that were brought in the boat. The inhabitants of this coast proved to belong to the same race as those of the Maclay coast; however, it was easy to perceive, especially among children, unmistakable traces of mixture of Malayan blood. The size of the men on the Maclay coast varies from 1'74 metres to 1'42; the size of full-grown women was 1'32. On the Papua-Koviag coast the size of the men was from 1'75 to 1'48 metres, and the size of the women 1'31. On the Maclay coast the length of the transversal diameter of the skull was from 64.0 to 86.4 per cent. of the longitudinal diameter, and from 62 to 80 per cent. on the Koviag coast.

Leaving ten men at Aiva, M. Maclay went with the remainder of his crew to explore the interior of the mainland. He landed opposite Coira Island, and, crossing a range of mountains 1200 feet high, reached Lake Kamaka-Vallar. He found there a tribe which calls itself Vaasirau, but does not differ from the inhabitants of the coast. The water of the lake was very warm (31° Celsius), and contained an interesting new kind of sponge, belonging to the *Hallichondria*. The rains in this part of New Guinea are so copious that Triton Bay is sometimes covered with a sheet of sweet water that can be taken in vessels and used for drinking. As the lake has no outlet, its water rises many years, sometimes fifteen and twenty feet, and covers the trees that grow on its shores; but after a period of rising, the rocks at its bottom give way, and the water is discharged through a temporary outlet, which is soon checked by stones and mud. Returning to the shore, M. Maclay made excursions to the neighbouring islands (discovering coal on Lakahia Island), as well as several other excursions to the highlands of New Guinea. In Telok Bay the boat of M. Maclay was attacked by a number of pirogues of Papuans, but made his escape by rowing all night. But his men at Aiva were not so fortunate. They were attacked by 200 Papuans, who destroyed the hut and killed an old man who was interpreter, as well as his wife and child. A further stay at Aiva was impossible, as the Papuans had poisoned the springs; and so the party went to stay on Aidum Island, where M. Maclay's hunter brought him every day plenty of interesting birds and other animals. The New Guinea kangaroo, *Dendrologus ursinus*, is worthy of mention, as it has to adapt itself to

local conditions, strong nails, and lost at the same time the strength of the muscles of the tail; it has become thus a climbing animal and lives mostly in trees. After having taken prisoner the chief of the Papuans who had robbed his hut, (M. Maclay went one day with a few men to their camp, and simply ordered them to tie the chief; the Papuans, terrified by the sudden appearance of a white, opposed no resistance), the party returned to the Seram-Lamut Islands, where M. Maclay studied the mixed race from the crossing of Malayans with Papuans. The anthropological results of these studies have appeared in the above-mentioned periodical as an appendix to the paper entitled "Meine zweite Excursion nach Neue Guinea," 1874.

The Papuans of the Koviag coast are a very interesting race of aquatic nomads. They were centuries since in relations with Malayans, who came to New Guinea especially to purchase slaves, exported to a great extent to the Malayan Islands. The slaves were formerly purchased among the inhabitants of the sea-coast; but to have more slaves these last have begun to make raids on the highlanders, who took revenge by raids themselves, so that the inhabitants of the coast were compelled to abandon all their villages. They are living now in covered boats, and continually cruise in them along the shore in search of food, landing only during storms, for in the night, at a few well-known places, where they are safe from attacks by the highlanders. The Malayans have introduced among them the use of gold, opium, and fire-arms, and they are very miserable.

From the Koviag coast, M. Maclay returned to Java, but soon undertook a fourth journey to New Guinea, to the southern coast, in order to ascertain the existence of a yellow Malayan race, which was mentioned several times by missionaries and travellers. After an eleven months' cruise on board a schooner, during which he visited the Solomon and Luisiada Islands, M. Maclay stopped on Teste Island, and thence proceeded on board a schooner to Port Maresby (Anapuata), on the southern coast of New Guinea. During his visits to the neighbouring villages, he perceived, indeed, a mixture of Polynesian blood among the Papuans. These metiss have a lighter skin and uncurled hair. They have also taken from the Polynesians the use of tattooing; all women tattoo themselves as long as they have children, and M. Maclay remarks that not only himself, but also many Europeans, find that the tattooed Papuan women are really better looking than the un-tattooed. They cover themselves with tattooing from the forehead to the feet, and often shave the head to tattoo it. The men are tattooed only to exhibit some of their exploits; by simply looking at a tattooed man you can say how many foes he has killed. The south coast is inhabited by the same Papuans as the other parts of New Guinea. Here also brachiocephalic skulls are not uncommon; but the skulls are also distorted, as the women used to bear loads on their backs, in bags that are attached by a rope to the head. The transversal depression of the bones at the *Satura sagittalis*, which results from this custom, is met with very often, and must be transmitted by heredity.

M. Maclay made a fifth visit to New Guinea on board an English man-of-war, to exercise his conciliating influence on the commander, who was going to burn a whole village and destroy the 2000 inhabitants, in order to punish them for killing four missionaries. The visit was very short.

M. Maclay concluded his lecture with a few remarks on the influence of the whites on the inhabitants of the south coast of New Guinea. Whilst rendering justice to the efforts of the London Missionary Society, who spread, by means of their black staff, the Christian religion, and teach the natives to read and write, M. Maclay pointed out that traders follow immediately the missionaries, and spread among the natives diseases, drunkenness, and the use of fire arms, which completely counterbalance the good influence of the very small amount of knowledge that might be spread by missionaries. The London Missionary Society does not allow its members to be at the same time the bearers of religion and of the above-said "benefits of civilisation"; but several missionaries of other societies appear in both these qualities. M. Maclay hopes, however, that the climate of New Guinea will be a good ally of the natives in their struggle against the white.

THE AURORA

WE have received the following further communications relating to the electric storm and auroral display of November 17:—