

The fourth Paper read was—

4. *Travels in Siam and Cambodia.* By D. O. KING, Esq.

MR. KING'S Paper is accompanied by a map, and contains the result of a year's travel through the hitherto imperfectly known lands of Eastern Siam and the modern remnant of the old kingdom of Cambodia. He travelled from Bangkok to the Bang-ta-kong river by a canal. This is a line of route in extensive use by travellers, who would otherwise have to skirt the rocky and mountainous coast. It passes through a flat alluvial country, entirely covered with rice fields, and swarming with mosquitoes. The Bang-ta-kong river was then ascended: it is about 40 yards broad and winding, and there is a broken strip of cultivation on either bank, while large tracts of good land are allowed to remain waste. The Siamese have introduced some coolie labour, though they are averse to its general adoption.

A military road was constructed, twenty years ago, from this river to the Tasawai. Its bridges are now broken down, and the road is a mere wreck; nevertheless it is the only existing route across the country, and Mr. King travelled by it. All travellers in Eastern Siam use elephants: these beasts are in general employment as far as Cochin China, and are remarkably cheap. A full grown one costs only from 50 to 70 dollars. But elephant riding in Siam is very tedious. The roads are almost impassable by floods in the wet season, and are parched with drought during the dry; while the animals become sick and footsore if pushed beyond twenty miles a day.

No trace was found of the ancient capital of Cambodia, excepting only its temple, with its immense quadrangle. It stands surrounded by jungle, and is still considered a shrine: a few Buddhist priests live there. Mr. King extended his travels to within the frontiers of Cochin China, having visited a Roman Catholic mission establishment on the Oodoong river.

He considers there is little new or strange in the fauna or in the mineral produce of Eastern Siam. Wild animals are far from numerous. The pest of insects and other creatures seems almost unendurable; the worst of them all being the ground leeches, which fasten greedily on men and animals, and make sleeping in the open air an impossibility.

THE PRESIDENT.—This, gentlemen, as you are aware, is the last meeting of the present session. Before we part, I would make one observation. This beautiful room in which we are now assembled has been lent to us by the kindness of the University of London and the Royal Society. I am sure you

will readily agree with me that we are much indebted to these Bodies for having allowed us to meet here. The Council of this Society have this day agreed to request these two distinguished Institutions to permit us to continue the use of this room—that is, if the building itself should be permitted to remain in existence. We hear rumours that it will not—rumours which, upon public grounds, as well as in regard to the interests of this Society, I trust may not be true. While we feel grateful to the Royal Society and to the University of London, I am sure I shall be only expressing the feelings of the Society at large, if I indulge in the hope that this may not be the last occasion upon which the Royal Geographical Society may assemble here.

SIR RODERICK MURCHISON.—Before the meeting adjourns, allow me to call its attention for one moment to some beautiful photographic sketches that are now laid upon the table. On the occasion of the last Anniversary it was my duty to notice the merits of those distinguished explorers of the distant parts of Asia, the brothers Schlagintweit, one of whom, Adolphe, has unfortunately fallen a victim to his zeal. The other brothers, Hermann and Robert, after their various exploits, have now placed before us a number of illustrations which they have prepared. These are chromo-lithograph sketches of those very elevated mountains of the Himálayan range which these gentlemen explored, and which now for the first time are made known to geographers. As I find that one of my friends, Mr. Hermann Schlagintweit, is present, I take the liberty of requesting that he be permitted to offer one or two observations to the meeting in explanation of these sketches.

MR. H. SCHLAGINTWEIT.—One of these drawings on the table represents Kunchinjinga, one of the highest mountains in the Himálayan range, whose altitude is 28,150 feet, and which is also interesting from the great analogy of its geological formation to the higher summits of the Alps. It is not true granite, but mica schist and gneiss; the true granite is met with in the Himálayas, but it forms a narrow zone at the southern foot of the Bhutan Himálayas. Another plate represents, in similar execution, Gaurisankar, or Mount Everest, till now the highest known mountain on the globe, found by Colonel Waugh to exceed 29,000 feet. I may mention in a few words the interesting signification of its native name, the meaning of which very nearly coincides with the meaning of that which is given in the Bhutan to the highest of its Himálayan summits, videlicet to Chamalari. In the name Gaurisankar, Gauri is the name of a female deity, Siva's wife. In Chamalari Chama has the same signification. Sankar, as well as Lha, is the respective name of Siva. In the Bhutia name the word "ri," meaning mountain, is added, which is dropped in the Nepalese name. A third plate represents one of the largest groups of glaciers we have met with on our journey. It is a glacier of the first order—considerably longer than any of the glaciers of the Alps, and interesting also as showing, like all the great glaciers in the Himálayan and Tibetan ranges, a much greater decrease than the glaciers do, generally speaking, in the Alps. In the Alps we had occasion to measure a great number of glaciers with reference to their distance from the extreme moraines, and we found, as specified in our "Untersuchungen," to our surprise, that by far the greater part show a small decrease—that is to say, the greater part of the Alpine glaciers was found considerably distant from those moraines which could be considered as the marks of their greatest extent in the recent periods of oscillations. But in the Himálayas, there is not one glacier reaching its extreme moraine; *all* of them are decreasing. The cause of this general decrease is a very curious one. The average depth to which the rivers have cut in the Alps does not exceed, generally speaking, and rarely ever reaches 200 feet. In the Himálayas it frequently occurs that this erosion reaches a depth of 1200 feet, and the consequence is a very important one as regards the physical geography of the country. The physical result, in reference to a glacier, is that not only a

place is generated which is 1200 feet deep, and which in consequence is much warmer than the spot which existed at the same locality before; but also that, on account of the formation of the erosion, a current of heated air is going up as through a funnel, which acts most effectually in reducing the size of the glacier, and which gradually increases as the erosion extends. Another curious fact, which, we think, finds its explanation by the erosion, is the absence of waterfalls in the mountain systems of High Asia, and more especially in the Himálayas, where this want of waterfalls often has been mentioned without any attempt at explanation. The opinion about this remarkable want of waterfalls which we allow ourselves to present is this: The lateral rivers, during the rainy season, have such an increase of water that they act nearly as powerfully as the large rivers do, since at the same time they have a much steeper descent. The consequence is that generally the large and small rivers unite at about the same angle of inclination. Consequently waterfalls which formerly existed, and of which traces are yet seen, have been entirely eliminated from the Himálayas.

Another consequence of the erosion is the gradual drainage of fresh water lakes, or their conversion into salt water lakes. It is very characteristic for the Himálayas, and in this respect they differ essentially from most other mountain systems in the world, that hardly any fresh-water lakes now occur. The only few lakes of any considerable extent which have been made known by Captain Strachey, Captain Speke, and Major Cunningham, as well as those we visited besides, are all salt water. But the explanation we think we must give of this phenomenon is different from the explanation formerly given. Some have thought that a raising of the country might have caused a general drainage. We think that supposition rather improbable, from the recent strata round these salt lakes being all horizontal, and the outlets of these salt lakes being in a different direction in reference to the horizon. If any raising of the country had effected the drainage of the salt lakes, the effect would have been a perfectly different one, according to the position the outlet of these lakes had in reference to the points of the horizon, a modification which is nowhere met with.

The Tso mo Ri ri and the Tso mo Gnalari, the two great salt lakes of Rupchu and Pankong, of which drawings are presented, happen to be a good example of two large lakes, being about equally salt, with differently directed former outlets, and with quite horizontal banks of detritus and of watermarks along their circumferences. The gradual progress of the erosion of the valleys seems to us to be also the chief cause of the gradual transformation of freshwater lakes into saltwater lakes in Tibet.

By this progressive excavation thousands of square miles, still marked as former lakes by the form of the surface, have been emptied, and the consequence is that the local evaporation could no more keep the equilibrium with the precipitation; in consequence the lakes, of which parts remained undrained on account of their greater depth, now gradually became more and more salt. I could add still many observations about the various characteristic features of the physical geography of the tropical and high land and glacial regions, which we have tried to represent in our drawings, amounting, as the catalogue presented shows, to 700; but I conclude with repeating my apologies for having already passed the hour allowed to discussion.

SIR RODERICK MURCHISON.—A very great subject which has been brought before you by my friend Mr. Hermann Schlagintweit—one which would lead us into the consideration of the physical geography of the Himálayan and Karakorum chains, and even beyond the latter across the Kuen Lun—subjects too vast to be entered upon at this hour of the night. The observations which my friend has just addressed to you respecting the lakes, drainage, and the ancient configuration of this country, are obviously matters of such magnitude,

that if we had begun the evening with them we might have descanted upon them for a good hour with great satisfaction. Let me, however, state that the brothers Schlagintweit were selected to perform these services in the East by my illustrious friend the late Baron Humboldt. And why? These gentlemen had ascended peaks of the Alps which no other persons had climbed, and had made themselves acquainted with phenomena with reference to the mountain system of that country which were before that unknown to geographers. It was, therefore, felt that they were especially capable of undertaking the examination of the range. I think we have reason to thank them for bringing before us such natural features as are indicated in the beautiful drawings on our table, and I am sure that the Geographical Society does well in recognizing the merits of these distinguished German explorers.

The PRESIDENT.—It is too late to enter into any discussion. We are much indebted to Sir Roderick Murchison for bringing these drawings under your notice, and our thanks are eminently due to the Messrs. Schlagintweit.

ADDITIONAL NOTICES.

1. *Geognostic Sketch of the Western portion of Timor.* By Dr. SALOMON MÜLLER.

Communicated by JOHN YEATS, Esq., LL.D., F.R.G.S., &c.

THE exterior of the western portion of Timor is very mountainous. Countless streams of various size springing from a central elevated ridge, traverse the island in a northerly or southerly direction. Their beds are mostly strewn with boulders and sandy gravel from different species of rocks.

The principal mountains of Timor's western half are of the older Neptunian formation, systematically designated the greywacke group.

a. The greywacke limestone, forming in Timor huge piles of rock and steep mountains, some of them rising 4000 to 5000 feet above the sea-level, consists of a thick mass, with flat shelly fracture, commonly of a grey, but sometimes of a red colour, and intersected in all directions with veins of white calcareous spar, often in quantities so large that the original mass almost disappears, and the rock assumes a crystalline aspect. Large or small hollows or fissures, covered with pointed rhomboidal crystals of calcareous spar, are not unfrequently found in it.

The hills and higher elevations composed of this limestone may be easily distinguished, even at a considerable distance, by their characteristic forms, from the rest of the island. Their outlines are mostly very angular, often serrated, and not unfrequently exhibit needle-like and turreted tops, that rise to an imposing altitude.

b. The greywacke sandstone connecting itself immediately with the preceding species of rock, forms mountains less strongly marked by rude and sharp outlines; yet some of them with conical tops belong to the highest peaks (6000 to 7000 feet) of the island. To them, besides, rounder and more softly swelling lines are peculiar, not unfrequently consisting of long backs; while their declivities are commonly covered with grass, bushes, or trees, through which the naked cliff glistens at intervals. The rock itself is of a grey or yellow-brown colour. The granular specks imbedded in a scarcely