

GEOGRAPHY AT THE BRITISH ASSOCIATION.

WHEN the British Association last met at Dundee in 1867 the president of Section E, Sir Samuel Baker, had but lately returned from his discovery of the Albert Nyanza. In his presidential address for 1912 Colonel Sir Charles Watson returned to the subject of the Sudan, pointing out how much and yet how little has been learnt since the time of Sir Samuel Baker. In 1869 Sir Samuel Baker was appointed by the Khedive Ismail governor of the country south of Gondokoro, with instructions to extend the Khedive's authority as far south as possible. Owing to the increase of the Sudd and the inadequacy of his forces, little was accomplished at his return in 1873. The same post was held from 1874 to 1876 by Colonel Gordon, who for three years from 1877 was governor-general of the whole Sudan. Pressure of administrative work lessened the opportunities of geographical discovery, and after 1881 the Sudan was closed to Europeans until 1898. Few know how limited is our knowledge of the Sudan even to-day. Small scale maps convey the impression that more is known than is really known, and whatever appears on a carefully engraved map comes to be accepted as true for all time. The course of the Blue Nile itself from Lake Tsana to Famaka, the upper waters of the Atbara, Rahad Dinder and Sobat, and the mountains from which they flow, still await exploration, while great areas of the level plains remain not only unsurveyed, but unvisited. A complete trigonometrical survey is out of the question for many years to come, and though there has been a wonderful increase in our knowledge, though the blank spaces will be gradually filled, the task of geographers in the Sudan is not even half-completed.

In the absence of the Director-General of the Ordnance Survey, Captain E. O. Henrici, R.E., read his paper on the international map, and exhibited the five sheets hitherto published. The discussion on this paper strongly supported the president's criticisms of the colour scheme, and a general feeling was manifested in favour of a black and white edition of the map.

A valuable paper by Mr. E. A. Reeves dealt with recent improvements in surveying instruments, including those which deal with astronomical observation, triangulation and levelling, such as lamps for theodolites, invar tape and reflecting levels, and also the latest instruments for plotting the facts observed, such as the stereo plotter, Orel's stereo-autograph, telescopic alidades, and the latest advances in photographic surveying. Great interest was shown in an exhibition of road-books and atlases which illustrated Sir H. G. Fordham's bibliography of British and Irish road-books and itineraries from Leland to Ogilby, from Ogilby to Cary, and in the last period from 1798 to about 1850, when railways made itineraries except Bradshaw unnecessary. This paper included some references to the road-books of France.

African geography was pursued further by Dr. Felix Oswald, who gave some of the results of his journeys between the Victoria Nyanza and the Kisii Highlands, and Mr. G. W. Grabham, who dealt with the country northward from Lake Albert. Mr. W. J. Harding King, in his paper on the Libyan Desert, pointed out that the sand dunes do not extend so far as was formerly supposed, since a large plateau, starting about 20 miles south-west from Dakkleh oasis and running west, banks up practically the whole of the dunes. Southward of this plateau is a sandy plain rising toward the south; the top of a hill in this plain was found to be 2150 feet above the sea. There are

numerous fertile spots south of lat. 20° N. Ennedi is said to be full of Roman remains. Another desert paper was given by Mr. I. N. Dracopoli, who, in speaking of the Sonora Desert of Mexico, dealt with the physical features of the region and the characteristics of the Papago and Seri Indians.

Mr. P. Amaury Talbot gave his experiences of Southern Nigeria, especially in the forest belt lying between the coastal swamps and the grasslands of the interior. As the Yoruba and Ibo territory is better known, he paid most attention to the Cross River district and its ethnography—the Ododop or Korawp forest negroes, the Ojo and Uyanga and the Ekoi, a semi-Bantu people of a high type.

The Antarctic discussion, which occupied the Monday morning, was specially appropriate to Dundee; no fewer than four Antarctic vessels were actually lying in the harbour during the meeting. Sir Clements Markham, to whom with Sir John Murray the revived interest in the Antarctic is mainly due, confined his attention to the expeditions of Captain Scott, Mr. Mawson, and Captain Filchner. Dr. W. S. Bruce gave a full review of the configuration of the continent, both the coast and the interior, as at present known, and then discussed former connections with the southern continents, as suggested by the discoveries of the *Scotia*. Dr. R. N. Rudmose Brown, who opened the discussion, agreed in the main with Dr. Bruce's views of the continental structure. Dr. E. Marshall spoke of the work done by Sir Ernest Shackleton, and Dr. Hodgson of his experiences in the *Discovery*. Prof. Charles Chilton, of New Zealand, discussed the biological evidence for the former land connection with his country.

Two committees were appointed to report to the section at the 1913 meeting, one on the present state of geographical teaching in Scotland, and the other on the choice and style of atlas, textual, and wall-maps.

PHYSIOLOGY AT THE BRITISH ASSOCIATION.

THE proceedings of the Section of Physiology were characterised by two features: the first was that a large number of foreigners attended the meetings of the section, and the second was that a whole day was devoted to subjects bearing on psychology.

Three subjects formed the bases of discussions. One joint discussion on animal nutrition with the Section of Agriculture is described in the report, which appears elsewhere in this issue, of the proceedings of that section.

The second joint discussion on the physiology of aquatic organisms was held with the Section of Zoology. This discussion was opened by Prof. A. Pütter, who gave the arguments in favour of his hypothesis that aquatic animals frequently obtain their food material in dissolved form. By measuring the respiratory exchange it is possible to calculate the amount of organic matter oxidised, and the quantity of organic matter in the form of plankton can be determined. If the plankton is uniformly distributed there is not sufficient particulate material to account for the organic matter oxidised unless the animals deal with disproportionately large amounts of water. He has kept animals for long periods without solid food, and found that they gained in weight. In addition, he determined the amount of dissolved organic matter in sea-water, and found that it was sufficient to account for the respiratory exchange of the animals.

Prof. Benjamin Moore, F.R.S., on the other hand, stated that there was not sufficient dissolved organic matter to account for the respiratory exchange. He considered that the plankton is not evenly distributed,