

and not bewilderingly complicated like those of tropical America. Africa, too, is especially rich in naturalists who are waiting to be inspired and encouraged, as they will assuredly be by the present work. The author is to be congratulated upon the fine volume and the beautiful plates which are the outcome of his labour of love. It cannot be long before he may be congratulated upon their fruitful results. E. B. P.

#### THE GEOLOGY OF EGYPT.

*Geological Map of Egypt.* Scale 1:1,000,000 (six sheets) and reduction of the same to the scale 1:2,000,000. (Cairo: Survey Department, 1910.)

SOON after the occupation of Egypt by a British military force in 1882, the late Prof. Huxley, then president of the Royal Society, directed attention to the valuable opportunity that was afforded for the extension of our geological knowledge in that interesting country. He instanced the valuable series of scientific memoirs that had been prepared by French savants during the occupation of the country at the beginning of the nineteenth century, as an example worthy to be followed. Following his advice, the Royal Society appointed a "Delta Committee" to arrange for explorations, which it seemed desirable to undertake, and made various grants from its funds to defray expenses. The War Department of the Government, on being applied to by the Royal Society, agreed to lend the service of some of the engineer-officers, then in the country, to supervise the work.

As the result of these arrangements, borings were put down at a number of points in the Nile Delta, and reports on the materials sent home were submitted to the society by the Delta Committee in 1885 and 1897, and were published in the Royal Society Proceedings.

But in 1893-4 an engineer-officer, Captain H. G. Lyons, already known in this country by his geological work in the Bagshot area, was employed on patrol work in the oases of Kharga and Dakhla and in the desert routes to the south of them, and he took the opportunity thus afforded to him for making a number of geological observations in the district, which proved to be of great value and interest. Two years later the Egyptian Government decided to establish a geological survey of the country, and to place it under the direction of Captain Lyons. A staff of surveyors was formed, consisting of four young geologists from the Royal College of Science—Messrs. Barron, Beadnell, Hume, and Ball—and for a time Dr. Blankenhorn acted as palæontologist to the survey. The first named of these surveyors, after doing much excellent work, fell a victim to the climate of the Sudan in 1906. A number of very valuable memoirs by Captain Lyons and his staff have been published, some of which have been already reviewed in the pages of NATURE.

As Egypt and the Sudan have no good topographical maps to be placed at the disposal of the geological staff, topographers have had to be attached to each of the geological surveying parties; in this branch of the work Mr. F. W. Green, of Cambridge, a good archæologist, has often served as a volunteer. In

1898 Captain Lyons took over the charge of the whole of the survey departments of Egypt, while continuing his direction of the geological work.

It is not possible here to enumerate all the advances made in our knowledge through the labours of the little staff of geological surveyors in Egypt, but especial mention may be made of the important palæontological discoveries of Mr. Beadnell, aided by Dr. Andrews, in the Fayum, which included the finding of the wonderful *Arsinothierium*, and the ancestral forms of elephants and whales. Scarcely less interesting and important are the results obtained by Dr. Hume in his surveys of the Sinaitic peninsula, and of the eastern and south-eastern deserts of Egypt; and by Dr. Bell in his work around several of the oases and cataracts.

The results of all these researches are incorporated in the new geological maps of Egypt now issued. In spite of the existence of considerable blanks, these maps are a very great advance on any that have hitherto appeared. The oldest fossiliferous formation recognised is the Carboniferous, but considerable areas have to be mapped as "Nubian sandstones," portions of which may be of different geological age; there are also beds of gypsum, the position of which in the geological series is in some cases still doubtful. The Cretaceous strata are divided into Cenomanian, Senonian, and Danian, while the extensively developed Eocene strata have been distributed in three local divisions. Strata referred to the Miocene and Pliocene also occur, while Pleistocene and more recent deposits obscure wide areas. The larger-scale map forms six sheets, and the smaller a single sheet; all these are admirably printed in colour, and corresponding maps with hill-shading have also been issued by the Survey Department.

The survey staff has lost its original director, Captain Lyons, and also Mr. Beadnell, but it has been reinforced by the appointment of Mr. H. T. Ferrar, the geologist of Captain Scott's first Antarctic expedition; there have also been several other geologists who have served temporarily on the staff. The work is carried on at the present time under the directorship of Dr. W. Fraser Hume, who has had such a wide experience in desert-work, and is responsible for the maps which form the subject of the present notice. We are glad to learn from the last issued report of the survey that Dr. Hume proposes to write a general sketch of the "Geology of Egypt," this work, from such capable hands, will be looked forward to by geologists with much interest.

J. W. J.

#### THE BEGINNINGS OF BOTANY.

*Landmarks of Botanical History. A Study in Certain Epochs in the Development of the Science of Botany.* Part i., Prior to 1562 A.D. By E. L. Greene. Pp. 329. (City of Washington: Smithsonian Institution, 1909; Smithsonian Miscellaneous Collection, part of vol. xlv.)

DR. GREENE has contributed to the history of the progress of botany a work that bears evidence of unwearied research into the labours of