

ON THE BLUE AND WHITE NILES.¹

THE reorganisation of the regions of the Upper Nile after the destruction of the Dervish power and the steady growth of prosperity in every district has profoundly impressed all who have travelled in the Sudan. The history of these last twelve years' work has yet to be written, for the account of Mahdism, by Sir Reginald Wingate, the present Governor-General, only dealt with the events which led up to the re-conquest of the country to the south of Wadi



FIG. 1.—A "Sadd" on the River. From "England in the Sudan."

Halfa. Yacoub Pasha Artin, for many years Under-Secretary of State of the Ministry of Public Instruction in Egypt, does not attempt to provide such a survey, for which perhaps the time has not yet arrived, but has given us instead a series of delightful sketches of these lands, which are being more and more visited each year. Written in form of letters setting forth his daily experiences, his conversations with those he met, Europeans, Egyptians, or Sudanese, first impressions noted on the spot when all was fresh and vivid, this account of the regions of the Blue and White Niles is not only of interest but has a special value on account of the author's intimate knowledge of Oriental life and history.

Starting early in November, Artin Pasha, accompanied by Prof. Sayce, was able to take advantage of the favourable flood of 1908 and reach Roseires, on the Blue Nile, by steamer; thence, returning to Khartoum, he traversed the White Nile as far as Gondokoro, on the northern frontier of Uganda, thus visiting the two main lines of communication and many of the stations on their banks. All attempt at a scientific account of the country is disclaimed, but indications appear frequently that the systematic study of the country and its resources is everywhere being carried on so far as means are available. Mention of the Department of Woods and Forests bears witness to this, for the demand made upon the trees on the banks of both Blue and White Niles for the steamer traffic can only be prudently met by careful conservation of the present supply. Inspectors have been appointed, and though difficulty was experienced at first in obtaining local labour, this has been overcome, and now funds alone put a limit to

¹ "England in the Sudan." By Yacoub Pasha Artin. Translated from the French of the author by G. Robb. Pp. xvi+251+map. (London: Macmillan and Co., L'd., 1911.) Price 10s. net.

the conservation possible. Both here and on the White Nile forest fires constitute the greatest danger to the young growth, but even these are being to some extent controlled.

The efficiency of the present administration is dwelt upon, though mention is made of cases where the Oriental foot finds the Western shoe to pinch inconveniently. In the area occupied by Arab tribes the question of slavery outweighs all others. An Arab sheikh discussed it frankly with the author, laying down that Arab landowners were incapable by habit and custom of working their land themselves, that they have always had negro slaves as cultivators, and that losing the slaves ruin will stare them in the face. Such changes can but be made slowly, but with the present increasing prosperity of the country and the suppression of inter-tribal warfare, even the Arab tribes will shortly accommodate themselves to new conditions. The author is especially qualified to present the local opinion, but he rarely states his own view of the merits of the questions raised.

On the White Nile a short stay was made at Kodok (formerly Fashoda), where the pastoral tribe of Shilluks has its headquarters, and descriptions of these interesting people are given. Under their own chief, the Mek, they have readily fallen in with the new régime, by which their tribal customs are respected, but their deepest hatred of those whom they call Turks, the slave merchants and slave-hunters of former days. Between this point and Gondokoro the Nile flows through a narrow valley plain, mainly occupied by marshes and lagoons, which provide the drift marsh vegetation, which at times is carried by wind and current into narrow channels or acute bends of the river, there to form a dense obstruction, the "sadd" proper. Loose application of this term to the region generally, to marsh vegetation, and to drifting vegetable matter, is to be deprecated, and even in

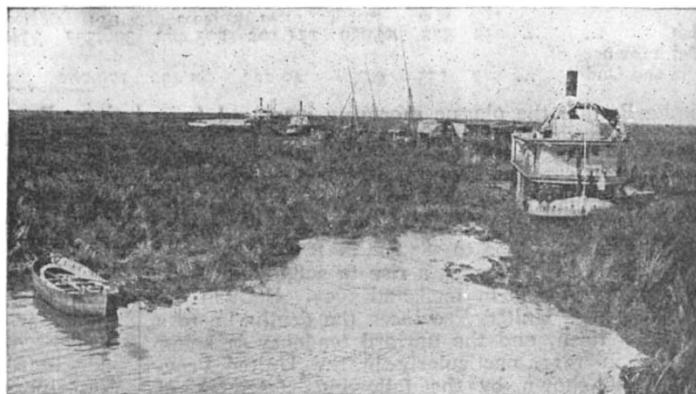


FIG. 2.—Stuck in the "Sadd." From "England in the Sudan."

the present account it is employed with some latitude. These obstructions have often been described, and Marno gave a very full account of them in 1880 and 1881. Though more understood to-day, the conditions which determine their formation are not controllable, so that during the late summer and autumn months, when rain and stormy weather prevail, constant care has to be exercised by the steamers passing up and down to remove any block that may be forming before it grows too solid. Among the illustra-

tions are two which are here reproduced by permission of the publishers. One shows a "sadd" sufficiently solid to check the flow of the river and form a lagoon; in the other both steamers and sailing boats have been brought up by a more compacted barrier of the same kind.

Khartoum is fully described, and the scientific work carried on at the Wellcome Laboratories is referred to. So many points of scientific interest are alluded to, having a bearing on various branches of knowledge, that we can only regret that the results have not a wider circulation and greater accessibility than is afforded by the annual official reports. The founder of the Wellcome Laboratory renders the results of its staff available, but in forestry, hydrography, and also in all that concerns the native races of the Sudan those who are working there are gaining data which have a value and importance beyond their own region. The illustrations greatly assist in forming an idea of the country described, but the map is not so satisfactory; it would be of more use if the modern place-names were correctly given and a consistent orthography employed.

H. G. L.

THE STRUCTURE OF HAUSALAND AND ITS NEIGHBOURHOOD.¹

IF there is one point more than another which calls for the attention of the geologist in West Africa it is the position and age of the older sedimentary series, i.e. the beds between the presumably Archæan gneiss and the Cretaceous strata.

Such information as is available about these rocks, quartzites and argillites, grits and phyllites, is fragmentary, and obtained from a variety of sources throughout West Africa, often from localities where no recognised survey has taken place, and where the relations of the component rock groups are unknown.

On the western side of northern Nigeria we have such a sedimentary series frequently exposed, and with this Dr. Falconer, in his book, "The Geology and Geography of Northern Nigeria," has dealt at length. He regards these rocks as the scarcely altered representatives of a group of schists and sedimentary gneisses, termed the "softer" gneisses, because of their relatively low capacity for resisting erosion, and believes that they were deposited upon a surface of Archæan gneiss—the "hard" gneiss—and affected thereafter (a) by regional metamorphism, and (b) by folding.

It can scarcely be doubted that the quartz-schists and quartz-muscovite-schists of Kabba and Ilorin are the same as those of the Central Province of southern Nigeria, a correlation which can probably be extended to the rocks of the Eastern Province, and possibly—for the general character of these schists is exceedingly constant—to other parts of West Africa.

Dr. Falconer, who states his case with great fairness, has accordingly advanced an hypothesis of considerable importance, but it would have greatly aided

¹ "The Geology and Geography of Northern Nigeria." By Dr. J. D. Falconer, with notes by the late A. Longbottom and an appendix on the Palæontology of the Cretaceous Deposits by H. Woods. Pp. xv+295+24 plates. (London: Macmillan and Co., Ltd., 1911.) Price 10s. net.

the reader and enhanced the value of the work as a book of reference if some plates had been included showing the minute structure of the rocks.

The book is technical and solely for the geologist, and, though one would be loth to lose any of the excellent photographs with which the author has embellished his work, one ventures to think that in some instances microscopy might have taken precedence.

The granite intrusions (see Fig. 1) are pre-Cretaceous in age, and fall into two subdivisions: an older foliated, and a younger non-foliated group, which includes soda-granites. The pneumatolytic modification of some of these granites, as at Bukuru, has as a distinguishing feature cassiterite and sulphides of copper, zinc, and lead.

The Cretaceous beds, confined to parts of the valleys of the Benue and its tributary, the Gongola, fall into an upper and a lower series of grits and sandstones, divided by a limestone-shale series of Turonian age. It is interesting to note the presence of salt in the

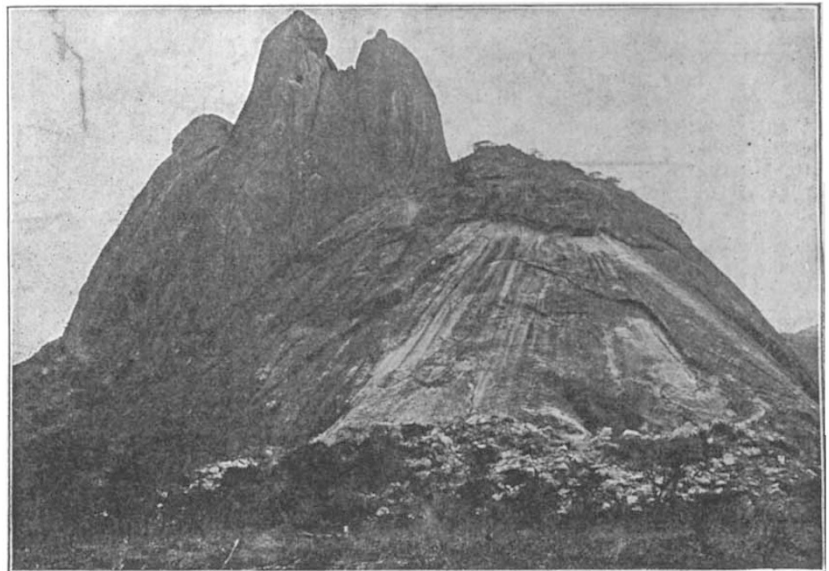


FIG. 1.—Exfoliation in the Kilba Hills. From "The Geology and Geography of Northern Nigeria."

lower grit series, and of veins of galena and blende at Arofu, doubtless connected with a small inlier of granite near the town.

Salt occurs in the north-eastern part of southern Nigeria, as do also galena and blende, which facts, together with the probable existence of Turonian beds in the same neighbourhood, suggest a general similarity in history.

In both Protectorates the Cretaceous beds are pierced by dykes and sills of dolerite.

Dr. Falconer lays some stress on the unconformity which he believes to exist between the Cretaceous and Eocene beds; and is worthy of note, in view of Mr. Kitson's opinion that a passage exists in southern Nigeria between the Mesozoic and Cainozoic.

There are three groups of Eocene beds in northern Nigeria, of which the western only has yielded fossils; the others are correlated with them on petrographical grounds, and on their position as regards the known Cretaceous.

Of these beds the first, especially around Sokoto, where limestones and calcareous clays and shales occur with efflorescences of alum and gypsum, is the most interesting; the beds of other localities consist largely of ferruginous sandstones and grits, types only too prevalent in either of the two Nigerias.