

ANTHROPOLOGY AND FAUNA OF THE CHAD BASIN.<sup>1</sup>

THE volume before us, which is published by the Ministry of the Colonies at Paris, represents—we assume—the outcome of the scientific researches in the very heart of Africa—the basin of Lake Chad—made by the exploring expeditions of the late (?) Commandant Tilho, who between 1906 and 1909 did so much to place correctly on the map of Africa this variable reservoir of the waters streaming northwards from the Congo watershed (it would seem as though this gallant and indefatigable explorer had recently died, from the rather obscure wording of the preface).

Lake Chad was first definitely discovered by the British expedition under Oudney, Denham, and Clapperton, which crossed the Sahara from Tripoli in 1822-23. Its existence had been rumoured in the heart of Africa from Roman times onwards. The twentieth-century investigations of British and French explorers, combined with some previous work done by Germans, indicate Lake Chad and some of the brackish lakes and lakelets to the south-east as the last remains of a vast sheet of shallow water anciently connected with the inner basin of the Niger. Farther back still in earth history, in Cretaceous and probably Eocene times, this huge lake must have stretched from the limits of Senegambia to the Nile and Congo watersheds, and have communicated probably with the Atlantic Ocean to the north of the Senegal River. Even at the present day there is an intermittent water connection between the Chad system and the Upper Benue, and there may well have been a similar connection in earlier times with the south-western basin of the Nile. The altitudes that separate the Congo basin from the Chad and the Benue basins are not considerable, though more marked in height than the line of water-parting at its lowest between the Nile system and that eastern back-water of Lake Chad known as the Bahr-al-Ghazal (this confusing name, which is also applied to the huge south-western area of the Nile basin, simply means "River of Antelopes"). The way in which these great river and lake systems of Central Africa either communicate with one another, or very nearly communicate, reminds one of the water connection between the systems of the Orinoco and the Amazon in analogous Equatorial South America.

The fish fauna collected by Commandant Tilho and his companions comes as an additional proof to the luminous theories of Dr. G. A. Boulenger, of the British Museum, who, by means of his studies of the fresh-water fish of tropical Africa, has shown us that at one period there must have been water communication between the systems of the Senegal, Upper Niger, Benue, Lake Chad, and even the south-western affluents of the Nile. The fish fauna of the Congo basin is far more

specialised, and though the two systems of drainage at one time must have been less separated than they are now and have approached one another so near that aerial methods of transporting fish over from one to the other must have been possible, there remains nevertheless a far closer connection between the basins of the Nile, Lake Chad, and the Niger than there is between all these and the Congo and Congolese lakes.

The volume contains chapters on the anthropology of the islands and eastern coastlands of Lake Chad and the western Bahr-al-Ghazal; on the reptiles and the batrachians; on the fish, the gastropods, and the bivalves or fresh-water oysters; on the diptera; and lastly on the botany of the region. The anthropological notes deal chiefly with the Buduma and Kuri of the Chad archipelago, and secondarily with the Kanem-bu and Mangawa, the Teda or Tubu, and the Uadsliman Arabs. These last, also known as Wasili, Washila, etc., seem to have migrated to this region from the south of Tripoli some 500 or 600 years ago. The Buduma are an exceedingly interesting people of puzzling characteristics, their language (not illustrated in the work under review) suggesting affinities with the Nilotic group far to the east. Their physique seems to indicate that they are the result of crossing between Nile negroes and the Ful who invaded this Chad region several centuries ago. The physiognomy of the Mangawa, on the other hand, recalls the Bantu type of the northern Congo and south-east Niger basins. The Tubu or Teda are another ethnological puzzle. They speak a negro type of language of no discoverable affinities (virtually identical with the language of Bornu), but in their physical appearance they resemble very strongly the hybrids between Nilotic Negro and Gala of Equatorial East Africa.

Much information is given in regard to the tsetse- and gad-flies of the Chad region.

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## PROF. IVAN PETROVITCH PAVLOV.

IN the death of Ivan Petrovitch Pavlov, which was announced in the *Times* of February 12, a physiologist has passed away who made the world of medical science his debtor for all time. Pavlov, the son of a secular clergyman, was born in 1849, and thus at his death had not reached the allotted span of human life. When he last mingled with his *confrères* at the International Congress of Physiology in Groningen—little more than two years ago—he appeared to be in the full vigour of life, and no one would have supposed that the summons to his long home would so soon be issued.

Pavlov is chiefly known to the present generation of physiologists by his work on the digestive glands; but this only represents the middle period, though perhaps the chief period, of his activities. His earliest published work (1877) was on the "Accommodation Mechanism of Blood Vessels." This was carried out in the laboratory of Ustimo-

<sup>1</sup> "Republique Française. Ministère des Colonies. Documents Scientifiques de la Mission Tilho (1906-09)." Tome troisième. Pp. vii+484. (Paris: E. Larose, 1914.)