

Mr. J. E. S. Moore in Lake Tanganyika during his recent expedition to Eastern Africa. As Mr. Moore has shown in our columns (*NATURE*, vol. lviii. p. 404), there are two faunas in Lake Tanganyika, the normal freshwater, and what Mr. Moore proposes to call the "Halolimnic" group, the latter being evidently of marine origin. That this is the case has been conclusively shown by Mr. Moore's studies of the splendid collection of molluscs which he obtained in that lake. It would therefore be naturally expected that the results of the examination of Mr. Moore's fishes, which has been undertaken by Mr. Boulenger, would likewise show the presence in Lake Tanganyika of a certain number of "Halolimnic" or marine fishes. This, however, does not prove to be the case. Mr. Moore's fishes, Mr. Boulenger informs us, do not yield any such startling results as the mollusca and other invertebrates. The fishes of Tanganyika, though very novel and very remarkable, do not embrace any marine forms. This may be due, as Mr. Boulenger observes, either to the origin of the present fish-fauna not reaching as far back in time as that of the molluscs, or to the incompleteness of Mr. Moore's series. The latter explanation is probably the correct one, as Mr. Moore met with great difficulty in dredging in the deeper water of Tanganyika, only one fish having been obtained from a depth of about 400 feet. This (*Bathybates ferox*), although of a new genus and species, belongs to the widely-spread African family Cichlidae.

Altogether, the fishes obtained by Mr. Moore in Lake Tanganyika are referred by Mr. Boulenger to thirty-five species, belonging to the families Serranidae, Cichlidae, Mastacembelidae, Siluridae, Cyprinidae, Characidae, Cyprinodontidae and Polypteridae. It would thus seem that in general characters the Tanganyikan fish-fauna, so far as it has been yet ascertained, does not materially differ from the fish-faunas of the other great African lakes, but that most of the Tanganyikan species and many of the genera are distinct, the family Cichlidae alone having furnished types of ten new genera in the present collection.

In his introductory remarks to the present memoir, Mr. Boulenger has taken the opportunity of putting together lists of the fishes already known to be found in Lake Nyasa, Lake Tanganyika, Lake Victoria and Lake Rudolph. From the first of these we are now acquainted with thirty-seven species, from the second with forty-three, from the third with only nineteen, and from the fourth (Lake Rudolph) with only nine. These lists, Mr. Boulenger points out, must be taken as giving a very inadequate idea of the piscian inhabitants of the great African lakes, owing to the manifest incompleteness of the collections upon which they are based. Of the other lakes nothing whatever, unfortunately, can be said at present, only one species of fish having been yet brought from the great Albert Nyanza. It is evident, therefore, that there is a fine field for the enterprising ichthyologist in the great African lakes.

PROFESSOR ALFREDO ANTUNES  
KANTHACK.

BY the death of Prof. Kanthack the science of pathology has lost one of its ablest and most indefatigable exponents, and the University of Cambridge, for the second time in less than fifteen months, a brilliant occupant of its chair of Pathology.

At the closing meeting of the Pathological Society, last summer, it was noticed by several of Prof. Kanthack's friends that he appeared to be less energetic and vigorous than usual. After this the work of the long vacation appears to have told upon his health so

seriously, that even during the course of a short holiday it was remarked at the opening of the Pathological Laboratories at Liverpool that he still appeared to be far from well. In spite of this few were prepared to learn, about the middle of December, that Prof. Kanthack was suffering from a malignant growth, the symptoms of which had first been indicated by jaundice and severe abdominal pain—a diagnosis that was afterwards confirmed. He died on December 21, 1898.

Alfredo Antunes Kanthack was the second son of Emilio Kanthack, Pará, Brazil, and Victoria his wife, both born in Pernambuco. He was born at Bahia on March 4, 1863, and spent the first few years of his life in Bahia and Ceará, Brazil. He was brought to Germany in 1869, being placed under the care of Pastor Hoppe of Artlenburg on the Elbe, father of the present Prof. Edmund Hoppe of Berlin. In 1870 he was sent to Hamburg, where he was first taught by a strict disciplinarian, "a tyrannical pedagogue but excellent teacher of elementary subjects." During this period he is described as "being by no means brilliant but extremely diligent." Early in 1875 he went to school in the Wandsbeck Gymnasium, near Hamburg. In 1876 he was transferred to the Gymnasium of another Prussian Government school at Lüneburg, and in 1878 to the Gymnasium at Gütersloh, where he greatly distinguished himself. In 1881 he came to Liverpool, where his parents were then residing, and continued his studies for a short time in the Shaw Street College (Classical Department). In 1882, after passing his University of London matriculation examination, he commenced his arts curriculum, and continued his studies in science and medicine under Mitchell Banks, Caton, Mott and other well-known teachers of the Liverpool medical school, graduating B.A. in 1884, B.Sc. in 1886, M.B. and B.S. (in each instance with honours), F.R.C.S. Lond. in 1888, and M.D. Lond. in 1892; whilst in 1897 he proceeded to the degree of M.A., and became a Fellow of the Royal College of Physicians, London. After completing his medical curriculum Dr. Kanthack, in 1889, proceeded to Berlin, and there, as part of the result of his studies under Virchow and Krause, he contributed an admirable paper to Virchow's *Archiv* on the histology of the larynx, a paper which at the time gave rise to a lively controversy, Dr. Kanthack maintaining his original thesis with marked ability and success. Whilst in Berlin, too, he worked under Koch, and here, as in the pathological laboratories, he attracted the attention and received the special encouragement of his teacher. Shortly after his return from Berlin, and probably as the result of an expression of opinion on the part of his teachers—Virchow and Koch—he was appointed one of the Special Commissioners along with the late Dr. Beaven Rake and Dr. Buckmaster, by a joint Committee of the Royal College of Physicians, the Royal College of Surgeons and the Executive Committee of the National Leprosy Fund, to investigate the prevalence, the pathology and the treatment of leprosy in India.

In 1891 Dr. Kanthack was appointed John Lucas Walker Scholar under the late Prof. Roy, and in succession to Dr. William Hunter. During the time that he held this scholarship in Cambridge, he published, along with Mr. Hardy, a paper on the wandering cell in the mammalia, in the *Journal of Physiology*, and a paper on the behaviour of wandering cells, in the *Proceedings of the Royal Society*, vol. lii. These papers are of special importance as indicating that, although thoroughly acquainted with Metschnikoff's work and all that that author had to advance in support of his phagocytic theory, Dr. Kanthack had made, during his stay in Germany, an accurate forecast of the destination to which the work that was being carried on in Germany by Koch's pupils



would eventually lead. During this period, too, he carried on an investigation on Madura Foot, and compared mycetoma with actinomycosis; this paper appeared in the *Journal of Pathology* and in the *Transactions* of the Pathological Society. In 1892 Dr. Kanthack became medical tutor at the Royal Infirmary, Liverpool, and in order that his bacteriological training might be utilised, a special demonstratorship of bacteriology was founded for him. The following year the authorities at St. Bartholomew's Hospital retained Dr. Kanthack's services as director of the Pathological Department in the School and Hospital and Lecturer on Pathology and Bacteriology; and a year later gave him the appointment of Curator of the Museum. In addition to the teaching and routine work of this period he contributed numerous notes and observations to the *Transactions* of the Pathological Society, and, probably for the purpose of systematising his teaching work and saving time in the explanation of details, he in 1894 published, in conjunction with Dr. Rolleston, a "Manual of Practical Morbid Anatomy"; and in the following year, along with Dr. Drysdale, a work on "Practical Bacteriology." Both these works give evidence of wide reading and of an accurate knowledge of literature thoroughly up to date. When Prof. Roy became so ill that it was evident that he could no longer carry on his professorial work, and in all probability would never again be able to take up the duties of his chair, Dr. Kanthack was appointed Deputy Professor of Pathology. The work of this post he carried on simultaneously with his duties at St. Bartholomew's Hospital, making the return journey between London and Cambridge several times a week. This, for a man who, a short time before, had recovered from a severe attack of typhoid fever, involved a very great physical strain; and early in 1897 Dr. Kanthack resigned his post at St. Bartholomew's and gave undivided attention to his work in Cambridge, where, on Prof. Roy's death, he was appointed Professor of Pathology.

Of Prof. Kanthack's influence on the study of pathology and bacteriology in this country, it is as yet too early to speak, though there can be little doubt that, apart from the work that he himself initiated, that of his pupils must ultimately leave a deep impress on the scientific medicine of our time and that immediately to follow. In many ways Prof. Kanthack was an ideal teacher. He exerted great personal influence over the young men who were brought into contact with him. His reading was very wide, so that, possessing a retentive memory, he was able to store up an enormous amount of accurate information which he could always bring to bear on the work that he had in hand. He was thus able to make a profound impression on his pupils. He had a sufficient amount of dogmatism in his manner and method to inspire them with confidence in his teaching, and to give those who were looking to him for guidance a sheet-anchor to which they might hold until they were thoroughly able to take their bearings for themselves. From his extensive reading, too, which, as already indicated, was always kept well up to date, he was able to determine at once what special points remained to be worked out in connection with the various subjects occupying the attention of the scientific world; whilst his keen critical faculty enabled him to mark the flaws in experiment or argument in published work that came under his notice, so that he was always able to set his pupils on to work which should shed some new light on the various questions attacked, and to gather facts and information which would help him in the solution of the problems on which he himself was engaged. Those of his pupils who knew him best regarded him with feelings of the deepest affection—to them the loss is intensely personal. In 1895 Prof. Kanthack married a Liverpool lady—Miss Lucie Henstock—the daughter of the late John Henstock, Esq., of Liverpool.

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#### NOTES.

IN retiring from the presidential chair of the Paris Academy of Sciences, at the meeting on January 2, M. Wolf referred to the changes which had occurred in the list of members and correspondants during last year. In the section of geometry, Prof. Cremona was elected correspondant in succession to Prof. Brioschi. The section of astronomy lost M. Souillart, and the two vacancies caused by his death and that of Dr. Gould, have not yet been filled up. There is a vacancy in the section of geography and navigation, caused by the death of M. Manen, and also a vacancy in the section of chemistry, caused by the death of Prof. Kékulé. In the section of mineralogy, M. Depéret was elected to succeed the late M. Pomel, and Prof. Marsh to succeed the late Prof. Hall. There are two vacancies in the section of botany, one caused by the death of Baron von Mueller. The section of rural economy has lost Marquis Menabrea and M. Demontzey by death, and the vacancies have not yet been filled up. Two vacancies also exist in the section of anatomy and physiology, on account of the deaths of Prof. Lovén and Prof. Steenstrup. In the section of medicine and surgery Prof. von Leyden has succeeded Prof. Virchow, who has been elected foreign associate of the Academy; and Prof. Mosso has succeeded the late Prof. Tholozan.

THE Council of the Royal Institute of Public Health have awarded the Harben Gold Medal for 1899 to Lord Lister, P.R.S., in recognition of his eminent services to preventive medicine. Prof. William R. Smith, who has been appointed Harben Lecturer for the year 1899, has chosen "Diphtheria" as the subject for his lectures.

A REPORT has reached us from Mr. L. Small, of Denver, of the discovery of a huge fossil Dinosaur that must have been about 130 feet in length. The remains were found by Prof. W. H. Reed, of Wyoming, in Jurassic strata, near Laramie, and indicate an animal much larger than any form that has been previously obtained.

IN addition to the New Year honours referred to last week, Sir Charles Cameron, medical officer of health for the City of Dublin, has had the Order of C.B. conferred upon him.

FATHER RODRIGUEZ DE PRADA has been appointed director of the Vatican Observatory.

THE annual general meeting of the Royal Meteorological Society will be held on Wednesday next, January 18, when the report of the Council will be read, the election of Officers and Council for the ensuing year will take place, and the President (Mr. F. Campbell Bayard) will deliver an address on "The government meteorological organisations in various parts of the world."

ON Tuesday next (January 17), Prof. E. Ray Lankester delivers the first of a course of ten lectures at the Royal Institution on "The Morphology of the Mollusca." On Thursday (January 19), Mr. A. Savage Landor will begin a course of three lectures on "Tibet and the Tibetans." The Friday evening meetings of the members will commence on January 20, when Prof. Dewar will deliver a discourse on "Liquid Hydrogen."

THE ninth International Congress of Ophthalmology will meet at Utrecht from August 14 to 18. Only the English, French, and German languages will be employed. There will be three sections—one for anatomy, pathological anatomy, and bacteriology; one for optics and physiology; and one for clinical and operative procedures. There will be a secretary for each language as follows: English, Dr. A. McGillivray, Dundee; French, Dr. A. Dufour, Lausanne; German, Dr. A. Siegrist, Bâle.