

phenomena has been demonstrated by Mr. David Lack, who has shown that the robin, while able to distinguish its mate from other individuals, will yet sometimes attack the headless remains of a stuffed specimen in which little more than the breast is visible.

In conclusion, it is to be noted that the study of all æsthetic characters is not devoid of application to everyday matters. Just as the form of fishes and birds has in the past been invoked to assist the marine architect and the aircraft designer, so, it may be hoped, will the coloration of cryptic animals read a much needed lesson on

the principles and practice of concealment to those responsible for the applications of camouflage in time of war.

HUGH B. COTT.

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Obituary Notices

Cavaliere Filippo De Filippi, Hon. K.C.I.E.

CAVALIERE FILIPPO DE FILIPPI, who died at his home near Florence on September 23 at the age of sixty-nine years, is probably best known in England as the leader of the Italian Scientific Expedition to the Himalayas, Karakorum and Chinese Turkestan in 1913-14.

This Expedition, probably the largest and best equipped that has ever visited Central Asia, was the conception of, and entirely organized by, De Filippi. His basic idea was the connexion of the gravimetric surveys of India and Russian Turkestan by a chain of stations across the mountain ranges—the Himalayas, Karakorum and Kuen-Lun—which separate them. This involved the accurate determination of the astronomical and geodetic co-ordinates of the stations, necessitating the use of instruments and methods of much greater accuracy than those normally used for survey work in such areas. The use of wireless time signals for the determination of the differences in longitude was the pioneer experiment in this method, and was highly successful. The anomalies of gravity deduced from the determinations made by the Expedition confirm the general conclusions drawn from those made by the Survey of India and the Russian Geodetic Service.

Complete sets of magnetic observations were made at each gravity station, and in addition, throughout the period November 1913–August 1914, full meteorological records were taken three times daily. These were extended to hourly readings from 6 a.m. to 8 p.m. during June 1914 and for the whole 24 hours during July, during which time the observers were on the Depsang Plateau. Observations for solar radiation and of the velocity and direction of the higher air currents were also made when weather permitted.

The geology of the whole area traversed was thoroughly examined by the two eminent geologists who accompanied the Expedition, and at the same time anthropological and ethnological studies were made. A topographical survey of the country was

also carried out and the very interesting geographical discovery made that the Rimu glacier divided on the Central Asian watershed. The main branch forms the source of the Shyok, the largest tributary of the Indus River, while a large but subsidiary one, extending to the north, is the source of the Yarkand River, which eventually loses itself in the deserts of Central Asia.

Dr. De Filippi was responsible for all the preliminary organization of the Expedition, and during it, in addition to his work as leader and medical officer, took charge of the transport and supply work, thus leaving the scientific officers free to devote their whole energies to their own special work. All his arrangements worked without a hitch, and the success of the Expedition was undoubtedly due to his great forethought and organizing abilities, and his tact in handling all sorts and conditions of men. He had a most charming manner and made friends with everyone he met, who must all deplore his death.

The results of the Expedition have been published in Italian in seventeen large volumes, but only the general narrative has been translated into English.

Dr. Josef Rosenthal

DR. JOSEF ROSENTHAL, formerly of Munich, died at Hampstead on August 7 last. As a young physicist, Rosenthal was one of the first to recognize the importance of Röntgen's discovery to medicine, and he devoted his life to the development of the X-ray tube, with special regard to its medical use.

Rosenthal's first experiments were reported to the Deutscher Naturforscher- und Aerzte-Tag in Braunschweig in 1897 in a paper "Ueber Röntgenbilder". In the same year, he began to work with H. Rieder, the medical radiologist, and this collaboration, which lasted for more than thirty years, led to many important results. One of Rosenthal's constant aims was to reduce the exposure time necessary for X-ray photography. This made possible two of the outstanding results of his work with Rieder, namely,

the first X-ray photograph of the human thorax in a living subject (1899; later frequently improved), and the first successful attempt at X-ray cinematography of the movements of the human stomach (1909). Jointly with Rieder, Rosenthal was editor of the first "Lehrbuch der Röntgenkunde" (first edition, 1913; second edition 1924).

In later years, Rosenthal took an active interest in the development of the Deutsches Museum in Munich, especially in its Department of Radiology, an activity which found its official recognition on the occasion of the laying of the foundation stone of the new Museum, in 1928, when he was awarded the "Goldene Ring" of the Museum. A popular lecture, given in the Museum, entitled "Das Jahrhundert der Strahlen", appeared as a pamphlet in 1930.

WE regret to announce the following deaths

Sir Henry Fowler, K.B.E., formerly chief mechanical engineer of the London, Midland and Scottish Railway, on October 16, aged sixty-eight years.

Dr. Willis R. Gregg, chief of the United States Weather Bureau, known for his work in aeronautical meteorology, on September 14, aged fifty-eight years.

Dr. Thomas C. Hebb, professor of physics in the University of British Columbia, on August 13, aged fifty-nine years.

Prof. Maurice d'Ocagne, 'free member' of the Paris Academy of Sciences, known for his work on the application of geometrical methods to the calculus, and author of the "Traité de Nomographie" (1919), on September 23, aged seventy-six years.

News and Views

Sir Daniel Hall K.C.B., F.R.S.

THE impending retirement of Sir Daniel Hall from the directorship of the John Innes Horticultural Institution will presumably close his very long connexion with agricultural administration and research. From the time when he was the first principal of the South-Eastern Agricultural College, Wye, and throughout his directorship of the Rothamsted Experimental Station, his tenure of office as principal scientific adviser to the Ministry of Agriculture and Fisheries, and lately as director of the John Innes Institution, Sir Daniel has impressed all by his knowledge, his sound judgment and tact, and not least by his great ability as a writer and speaker. Like the late Lord Ernle, and his successor at Rothamsted, Sir Daniel excels in the art of exposition, and British scientific agriculture has indeed been fortunate in commanding the services of men of this type. Now that he has passed the stage when, in the pursuit of duty, it is no longer necessary to "rise earlier than virtue and go to bed later than vice", we hope that Sir Daniel will find occasion to continue his great interest in the social contacts of science; but no one will grudge him time to devote to oriental art and other "digressions of a man of science". Science needs men like him who can write and speak, as well as think and do, in order that its voice may be heard amidst the disharmonies of a world torn by political turmoil and social strife.

International Study of African Problems

THE Volta Foundation Congress, which met in Rome at the beginning of October under the auspices of the Italian Royal Academy for the discussion of questions relating to Africa, was attended by delegates from fourteen European countries, including representatives of Great Britain and Germany. The delegates appear from the reports of the proceedings to have appreciated to the full both the joint responsibility of the nations of Europe for the future

development of Africa, which was stressed by Prof. Orestano in his address at the opening of the Congress, and the desirability of international co-operation on a broad basis in the study of conditions which is a necessary preliminary in the approach to the problems, upon the solution of which advancement of Africa and her peoples must depend. Among the topics discussed on these lines were such matters as tropical diseases, native education, European settlement, anthropological studies, communications, and the like. In view of the attitude of the delegates on these matters, it is not surprising that in the final session strong expression was given to the opinion that some permanent organization should be formed for the promotion of international co-operation in further inquiry; while it was also urged that nations other than those at present interested directly in Africa, should be invited to participate in the interests of civilization at large. While any proposal is welcome which aims at promoting study of the problems of Africa as a whole, and seeks to attract collaboration from as wide a field as possible, it may not be out of place to recall that there are already in existence international organizations, which in certain fields are doing excellent work, and are capable of ready extension, were funds available. It would, however, be premature to offer comment before the present proposal takes more definite shape.

Boundaries for University Teachers

ANY action which affects the positions of members of scientific staffs of universities or similar institutions concerned with the promotion of natural knowledge, or restricts fields of research, or is in conflict with the spirit of internationalism in science, commands the attention of scientific workers everywhere. It is on this account, and as an indication of the restrictions imposed upon the movements of university teachers by State authority, that we print the following