Obituary.

DR. H. F. GADOW, F.R.S.

DR. HANS FRIEDRICH GADOW died suddenly on May 16, aged seventy-three years. He was born in Pomerania, the eldest son of the Inspector of the Prussian Royal Forests. He was a Wend by birth, and he was deeply interested in the languages and aspirations of all the peoples of East Prussia. He was being trained for a commission during the Franco-German war. Afterwards he was educated at Frankfurt, Berlin, Jena, and Heidelberg, and he regarded himself as a pupil both of Haeckel and of Gegenbaur. For the former he edited "The Last Link," and he suggested his striking and picturesque comparison of past evolution with the spectrum. In his morphological work he always remained a pupil of Gegenbaur, who suggested his employment by the British Museum in 1880. Here he remained until 1882, when he was appointed Strickland curator of birds at Cambridge, in 1884 becoming lecturer on the advanced morphology of vertebrates as well; he also became naturalised. He remained in these same posts until 1920, when his lectureship was changed into a readership. During all these years he was responsible for the advanced teaching in the comparative anatomy of vertebrates at Cambridge, but on becoming reader he undertook at his own desire for some years the elementary teaching as well. He also lectured at times on the history of zoology and on geographical distribution. He was elected a fellow of the Royal Society in 1892.

Dr. Gadow's early researches were largely concerned with the musculature of reptiles and birds, in much of which he broke a new field. His volume in Bronn's "Klassen und Ordnungen des Tier-Reichs" on the anatomy of birds, more than 1000 pages and 59 plates, 1884-91, will always remain classical, and this was followed by a systematic volume in 1893. He was also responsible for all the anatomical parts in Newton's "Dictionary of Birds." His two papers (1895-6) on the vertebral column were a great attempt to bring into line the anatomy of different groups. He established the existence in each vertebra of four pieces, but the whole question is still very involved. He examined his material directly and by sections cut at all sorts of angles, and above all he made pilgrimages, wherein he saw practically all the fossil material of Europe. His lectures on the cloaca, on ear ossicles, and on other organs, were largely founded on his own researches, and in all his work on the hard parts he treated fossil with living forms in a single story.

With further discoveries in palæontology and embryology much of this work has been superseded, but Gadow's method undoubtedly exercised a stimulating influence on all zoology. In 1898 he published his "Classification of Vertebrata," which most of the critics of that time judged severely for its division of sucltorial and jawed forms and for the placings of many fossil groups, most of which are now accepted. The volume on amphibia and reptiles (1901) in the "Cambridge Natural

History," next occupied his attention. He personally examined practically every beast that he mentioned, and he made himself acquainted with very many by keeping them alive, by studying them in Nature or in zoological gardens. He started *de novo*, and the result is seen in unquestionably one of the greatest works in zoological science.

Dr. Gadow's explorations led him to caves and mountains in northern Spain and in Mexico among other places. He visited the latter on several occasions, being always warmly welcomed by President Diaz. He camped when and where he liked and at all elevations in complete safety in that land of brigands, for he had the gift of friendship with such wild peoples. His results are seen in two travel books and many papers, of which perhaps the most remarkable were on the colorations of lizards, snakes, and birds. His presidential address to Section D of the British Association (1913) was on the necessity for the study of structure and function taken together.

In many respects the late Dr. Gadow was a man of strong personality. He was always ready to fight any- and everyone over any zoological research or teaching matter. He seemed to us to enjoy it, and for the time being it entirely dominated his life, his opponent for the moment in all his works and characteristics being a villain. Yet this never lasted long, and he made no enemies and many friends, for his very faults were all lovable. His ideas of research were Teutonic—a professor and an obedient school, a system unsuited to England—and consequently he had few direct pupils, though all zoologists appreciate his potent and excellent influence on the development of their science in the last fifty years. All Cambridge men in particular will deeply regret his death, but he has left a good name and a fine record. J. S. G.

PROF. J. V. DANEŠ.

THE Charles' University of Prague has lost one of its leading professors, Prof. Jiří Václav Daneš, who died on April 13 in Los Angeles in his forty-eighth year, having been run over by a motor-car. This disaster happened when he was on a scientific tour through the United States, where he had been invited by several universities to lecture on geographical problems.

Daneš was our professor of general geography at Prague, and his aim was to make his subject a truly scientific one. He studied under Palacký in Prague and under Penck in Berlin. In the year 1919 he was nominated ordinary professor of the Charles' University, but soon afterwards accepted the post of a general consul in Sydney. Daneš worked especially in the domain of geomorphology and anthropogeography in the Czechoslovak Republic, in Yugoslavia, together with its famous geographer, Cvijić, in the United States, Mexico, Jamaica, Java, Australia, and Oceania, where he spent some time in travelling with his colleague, Prof. Karel Domin, professor of botany, and after

his return to Australia he worked there and on some of the islands for the Australian Government. The results of these scientific travels were published, jointly with Domin, in a volume, "Through the Double Paradise," and his further work was "Three Years in the Pacific."

Daneš published a series of papers in the *Proceedings of the Bohemian Academy of Prague* (with summaries in English), and the following further papers: "Physiography of some Limestone Areas in Queensland" (*Proc. Roy. Soc. Queensl.*, 1910); "On the Physiography of North-eastern Australia" (*Roy. Soc. Prague*, 1911); "Absence des traces glaciaires dans la Californie méridionale" (*La Géographie*); "La région des rivières Barrow et Russell (Queensland)" (*Annales de Géographie*, 1912); "Further Kars-Studies in Jamaica" (1914); "Glacial Studies in territory of Ljuma" (*Bull. Soc. Serbe de Géographie*, 1914); and many others. Daneš was in 1925-26 dean of the Faculty of Natural Sciences in the Charles' University; he was honorary, ordinary or corresponding member of many scientific societies, among them being—the Royal Society of Science and the Bohemian Academy of Science in Prague, the Royal Society of Queensland and the Royal Geographical Society of Australasia (Queensland branch, Brisbane), the Serbian Geographical Society in Beograd, the Royal Academy in Beograd, the Polish Geographical Society in Warszawa, and the Commission Internationale de l'Atlas photographique des Formes du Relief Terrestre.

BOHUSLAV BRAUNER.

PROF. EDGAR F. SMITH.

By the death of Prof. Edgar Fahs Smith on May 3, the United States loses a distinguished and versatile chemist who had many friends in England. Prof. Smith was born at York, Pennsylvania, on May 23, 1856. He graduated at Pennsylvania College in 1874 and proceeded to Germany, where he obtained his Ph.D. (Göttingen) in 1876. He was awarded the D.Sc. of Pennsylvania in 1899, and was afterwards honoured by many American universities and societies both in the United States and outside. He took up his duties as professor at Philadelphia in 1888 and continued there until his death.

Prof. Smith contributed to the advance of chemical knowledge in many fields, having carried out investigations in organic, inorganic, and physical chemistry. His earliest publications described the preparation and properties of the derivatives of certain aromatic acids and bases, and in this branch he claimed attention by translating Richter's "Chemistry of the Carbon Compounds," the first English edition appearing in 1886. Before this Smith had already turned his attention to the advantages to be gained by the application of electrical methods in analytical chemistry, and he worked out a number of procedures for separating and estimating metals by electro-deposition methods. So early as 1878 he published a book on "Electrochemical Analysis," which was favourably received and reached its sixth edition in 1917.

No. 3057, Vol. 121]

Most of Prof. Smith's researches, however, were concerned with tungsten and the tungstates, and although he carried out much painstaking work, this does not seem to have attracted the attention it merited. Indeed, Prof. Smith is best known as a biographer of American and other chemists and as a writer upon the history of science. His essays on the early American chemists, such as Martin Hans Boyé (1610-1686), Jacob Green (1790-1841), Robert Hare, J. Cutbush, Charles Baskerville (whose obituary he wrote for the *Journal of the Chemical Society*), and others, have done much to stimulate an interest in the achievements of these pioneers. In 1918 he published a "Life of James Woodhouse" (1770-1809), and last year there appeared his "Old Chemistries," in which he presented to "interested readers a hint of the vast stores of early literature relating to chemistry."

J. G. F. D.

THE issue of the *Physikalische Zeitschrift* for April 1 contains an obituary notice of Prof. Eilhard Weidemann from the pen of his former colleague and assistant, Dr. G. C. Smith. The son of the physicist Gustav Weidemann, he was born in Berlin on Aug. 1, 1852. He was educated at the high schools of various university towns, and at eighteen years of age entered the University of Heidelberg to study under Helmholtz, Bunsen, and Kirchhoff. He got his doctor's degree under his father at Leipzig in 1876 for a research on the elliptic polarisation of light. Two years later he received the title of extra-professor, and in 1886 was appointed professor of physics at Darmstadt, and a few months later at Erlangen. Here he spent the rest of his days and did his best work. In conjunction with his father he founded the *Beiblätter* to the *Annalen der Physik* and edited it for twenty-four years. He could speak with fluency several languages, and his studies in the history of science in Arabia are well known. He resigned his professorship in 1926 and died on Jan. 7 last. His principal researches dealt with specific heats and vacuum tube discharges. He was a fluent and clear lecturer.

WE regret to announce the following deaths:

Dr. Edward S. Burgess, for thirty years professor and head of the department of biological sciences at Hunter College, New York City, an authority on the asters of North America, on Feb. 23, aged seventy-three years.

Dr. Thomas Bruce Freas, professor of chemistry at Columbia University, to which he had been attached since 1911, who was known for his work on thermodynamics in chemistry, on Mar. 15, aged fifty-nine years.

Dr. F. M. Perkin, C.B.E., past-president of the Paint and Varnish Society and of the Oil and Colour Chemists' Association and one of the founders of the Faraday Society, on May 24.

Dr. C. G. J. Petersen, Director of the Danish Biological Station, Copenhagen, distinguished for his work on animal associations on the sea-bed.

Mr. W. E. Plummer, Director of the Liverpool Observatory at Bidston, Birkenhead, on May 22, aged seventy-nine years.