

I had not been three months in India before a conundrum in one of the circulars was given me to deal with, and several most interesting months were passed in endeavouring to submit a satisfactory solution.

The "Dictionary" was not intended as a text-book or handy handbook, but it was a first definite departure in the study of the economic products and served as the basis for the great development of this study which has since come about. Watt retired in 1906, but the post of Reporter was not finally abolished until both the Pusa and Dehra Dun Institutes were firmly established. Watt's ledger files, which he had maintained over a long period of years, were then made over to these latter. He had also edited an invaluable publication known as the *Agricultural Ledger* from 1892 to 1903, which was continued by his successors. He was also in charge of the industrial section of the Indian Museum at Calcutta.

It was during Lord Curzon's Viceroyalty, to some extent due to the fact that the "Dictionary" was out of print, that Watt was asked to prepare, with the guidance of a small expert committee in London, an abridged edition of the "Dictionary", to be brought up-to-date and to be issued in one volume. This work, under the title of "The Commercial Products of India", was published in 1908.

Watt was president of the Pharmacological Section of the Indian Medical Congress in 1894. In 1901 he was appointed to the Indigenous Drugs Committee, and as secretary drafted the report. In 1903 he organised an Indian Art Exhibition in connexion with Lord Curzon's Delhi Durbar.

After his retirement from India, Watt made a special study of cacao cultivation, visiting Portuguese West Africa for the purpose in 1912, and patented machinery for cacao manufacture. He served for five years as lecturer in the botany of Indian trees at the University of Edinburgh. He was made C.I.E. in 1886 and was knighted in 1903; he was LL.D. of both his old Universities, Aberdeen and Glasgow; a fellow of the Linnean Society; and had received distinctions from a number of foreign universities and scientific societies.

In addition to the "Dictionary", Watt published "Pests and Blights of the Tea Plant"; "Rhia and China Grass"; "Lac and Lac Industries of India"; and an important work on the "Wild and Cultivated Cotton Plants of the World".

Watt had settled at Lockerbie in 1910 and identified himself closely with local affairs, serving on the Dumfriesshire County Council and Education Authority. His death on April 2 will be much felt by many, and not least by the band of men who were identified, one way or other, with his valuable Indian work.

E. P. STEBBING.

PROF. I. P. BORODIN.

PROF. IVAN PARTHENIEVITCH BORODIN, whose death at Moscow was recently announced, was a botanist and forester of international reputation. Born at Novgorod in 1847, he was educated at the University of St. Petersburg, where he became pro-

fessor of botany in 1887, a position he held for three years. He then became professor at the St. Petersburg Forest Institute, where he continued for thirty years. This was formerly the largest and probably the best equipped forestry school in Europe, and many foreign students were attracted to it by the prestige of Borodin and the scientific staff. In 1897 he founded the biological freshwater station which bears his name and of which he was director.

Borodin's first researches were on the effect of light on the higher cryptogams, and he also worked on respiration. An early paper, however, on botanical progress during 1877-79, indicated the catholicity of his interests shown later by his publications on mycology, anatomy, reproduction, and biochemistry. He also wrote standard books on botany and agriculture.

The study of botany in Russia owes much to Borodin's zeal and versatility, and this is shown by the numerous honours conferred upon him. He was of strong physique and enormous energy, attributes which served him in good stead in the arduous botanical travels he undertook in the remoter parts of Siberia and the Caucasus. His interest in travel continued to the end, and he served as president of the standing commission for the development and exploitation of tropical countries. He held several other positions to which the term honorary is usually applied, but Borodin devoted himself to his duties with intense earnestness and clear thinking enthusiasm. He was a man with many friends in his own and in other countries.

PROF. HERMAN VON IHERING.

PROF. HERMAN VON IHERING, who died at Büdingen in Oberhessen on Feb. 24 in his eightieth year, is well known from his contributions to the biology and palæontology of South America, where he was for many years Director of the Museum at São Paulo, Brazil.

Von Ihering was especially interested in zoogeography and in order to test its problems by various groups of animals, specialised on land and freshwater mollusca and on the social insects, especially the wasps. He had also a good knowledge of the South American mammals, recent and fossil. He also wrote on the Antarctic faunas, the German Selachians, and the fossil and living mollusca of South America. He was a man of original and independent views and was often engaged in controversy, on one occasion with Ray Lankester. He was a pioneer in the application of parasites to zoogeography and it is often called "the von Ihering method".

Von Ihering wrote many memoirs on the anatomy and classification of the land mollusca and on the biological relations of South America. His last general work was his "Die Geschichte der Atlantischen Ozeans" (June 1927), wherein he summarised and restated his former conclusions, and advocated fundamental changes in both Atlantic and Pacific geography up to the middle of the Kainozoic era.

After his return from South America, von Ihering was honorary professor of palæontology in the University of Giessen. Many of his views were rejected when first advanced, but are now receiving wider recognition and acceptance.

PRINCIPAL J. YULE MACKAY.

JOHN YULE MACKAY, whose death on Mar. 30 we regret to record, was a distinguished student of the University of Glasgow. After graduation in medicine in 1882, he became Cleland's senior demonstrator and lecturer on embryology.

Mackay was successful as a teacher, and, in addition, he produced original work of permanent value. He devoted his attention mainly to the vascular system, and wrote a monograph on the morphology of the arterial arches in birds which was published in 1888 in the *Transactions of the Royal Society*. He was with Cleland the originator of the "Memoirs and Memoranda in Anatomy" which was issued from the Glasgow School, and its first volume, published in 1889, contained an interesting paper by him on "The Arterial System of Vertebrates Morphologically Considered", in which from his comparative observations, he constructed a scheme of the classification of the branches of the aorta, the correctness of which has been confirmed by subsequent embryological observations. His ability and energy were shown also in the volume on "Human Anatomy: General and Descriptive", which he produced in association with Cleland.

Shortly after Mackay's appointment to the chair

of anatomy in University College, Dundee, he was selected to be the principal of that College, and he held the dual posts until a few years ago, when he resigned the chair but retained the principalship. He was for many years the University representative of the University of St. Andrews on the General Medical Council, and until recently was the chairman of the Education Committee of the Council.
D. W.

WE regret to announce the following deaths:

Dr. J. H. Appleton, emeritus professor of chemistry at Brown University, known for his work in industrial chemistry, on Feb. 18, aged eighty-six years.

Dr. Asaph Hall, of the U.S. Naval Observatory, vice-president in 1900 of Section A of the American Association for the Advancement of Science, who was known for his work on the orbits of planetary satellites, on Jan. 12, aged seventy years.

Prof. Conrad Keller, professor of special zoology in the Technical Highschool, Zurich, author of works on the origin of domestic animals, aged eighty-two years.

Dr. W. A. Orton, director of the Tropical Plant Research Foundation, formerly plant pathologist in the U.S. Department of Agriculture, and president in 1921 of the American Phytopathological Society, on Jan. 7, aged fifty-two years.

Dr. R. F. Ruttan, emeritus dean of the faculty of graduate studies and research at McGill University, past president of the Royal Society of Canada and of the Society of Chemical Industry, on Feb. 19, aged seventy-three years.

Prof. L. Vialleton, honorary doyen of the faculty of medicine of the University of Montpellier, author of works on histology, evolution, and other zoological topics, aged sixty-nine years.

News and Views.

ON May 10 occurs the centenary of the birth of the distinguished French chemist, François Marie Raoult. The son of a customs officer, he was educated at Laon and Paris, became a teacher, held various appointments at Rheims and elsewhere, and in 1870, at the age of forty, succeeded to the chair of chemistry at Grenoble, where the remainder of his life was passed. His earliest researches were largely connected with the phenomena of the voltaic cell, but his name is best known for his work on solutions, which occupied the last two decades of his life. His first paper on the depression of the freezing points of liquids by the presence of substances dissolved in them was published in 1878. Continued experiments with various solvents led him to the discovery of a simple relation between the molecular weights of substances and the freezing-point of the solvent which he expressed in the "loi générale de la congélation". He also studied the diminution of the vapour pressure of a solvent caused by dissolving a substance in it, and his important work in these directions was afterwards used by such eminent investigators as van 't Hoff and Ostwald in support of the hypothesis of electrolytic dissociation in solutions. An account of his work was given in a memorial lecture in 1902 by van 't Hoff before the Chemical Society, of which Raoult had been elected a foreign member in 1898. A modest, retiring, and dignified man, he lived

mainly for his work, the value of which was recognised by the award of prizes by the Paris Academy of Sciences and of the Davy Medal of the Royal Society. His death took place on April 1, 1901.

FOR the public Kew is a delightful pleasure, for the gardener a demonstration of achievement and a suggestion of possibilities, and for the botanist a storehouse of information and a centre for research. The recently issued number of the *Bulletin of Miscellaneous Information* (Appendix I., 1930), comprises under this familiar but somewhat unattractive title, a review of the work of the various departments of the Royal Gardens during 1929. In 1925 work was begun on the formation of a National Pinetum at Bedgebury, in Kent, as the nearness of London is not conducive to the growth of conifers; and in spite of the long cold winter and abnormally dry summer of 1929, good progress is reported. The abolition of the penny charge for admission to the gardens from August Bank Holiday onwards is reflected in an increase in the number of visitors of nearly 220,000 between August and December, as compared with the corresponding period in 1928. The hard winter of 1928-29 and the boisterous gales of the last two months of the year caused severe losses among shrubs and large trees, but the long hot summer gave an unusual brilliance of colour to the abundant crops of fruits and berries on