

etc." (1922), which won him the London degree of Ph.D. The War period naturally precluded any possibility of scientific activities, but it is characteristic of Chipp's unbounded energy that, directly he took up his duties at Singapore, he set to work and contributed many articles to the *Gardens Bulletin* of the Straits Settlements; among the more important of these are his papers on "The Fungi of the Malay Peninsula".

When he became assistant director at Kew, in 1922, Chipp used any spare moments for carrying on the researches he had initiated during his second period of service in West Africa, and published some useful papers in the *Kew Bulletin*. He became a recognised authority on vegetation studies, and was honorary secretary of the British Empire Vegetation Committee. In this connexion he edited, with Prof. A. G. Tansley, the very valuable book, "Aims and Methods in the Study of Vegetation" (1926), which is recognised as the leading book on the subject. To this book he contributed the chapter relating to the tropical countries. As honorary secretary of this Committee, he devoted much labour to reading, digesting, and reviewing numerous publications relating to the vegetation and ecology of the Empire. His more recent book, "The Gold Coast Forest: a Study in Synecology", published in 1927, is a valuable contribution on original lines. This work formed his thesis for the degree of D.Sc.

At the beginning of 1919, Chipp was sent to Cyprus and the Sudan by the director of Kew, on the invitation of the respective Governments, and the reports on his visits were of great value and highly appreciated. While in the Sudan, he was able to ascend the scarcely known Imatong Mountains, on the Uganda border, making a careful study of the flora and bringing home large collections. An account of the botany of the region was published in the *Kew Bulletin* in 1929, and a more general account of his tour, entitled "Forests and Plants of the Anglo-Egyptian Sudan", appeared in the *Geographical Journal* for February 1930.

Chipp was co-secretary, with Mr. F. T. Brooks, of the Fifth International Botanical Congress, held at Cambridge last year. The organisation of this large Congress and the subsequent editing of the various reports entailed a vast amount of labour for the secretaries, and the perfection of the arrangements, and the smoothness with which the heavy programme was carried through, showed again the care and thoroughness which appeared in all Chipp's work. The preparation and publication of a new International Address-book of Botanists, decided upon by the Congress, was entrusted to an international committee consisting of Major Chipp, Prof. Diels of Berlin, and Dr. Merrill of New York. A great deal of the work of collecting information, and all the labour of final collation and the arrangements for publication, had been almost completed by Chipp with his usual ability just before his death, and the work is now in the printer's hands.

Early last year, after attending the French Government celebrations in Algeria, Chipp was invited to accompany Mrs. MacIver's expedition into the Central Sahara, and made a careful study of

the vegetation; his account of the scientific work of the expedition will be found in the August number of the *Geographical Journal*.

Chipp by his extensive travels in northern and western Africa had thus become one of the recognised authorities on the botany of this extensive region. His last paper, "The Vegetation of Northern Tropical Africa", which is about to be published in the *Scottish Geographical Magazine*, was delivered in the form of lectures given in March last at Edinburgh, Dundee, Aberdeen, and Glasgow. His untimely death is thus not only a great loss to Kew but also to botany. He was indeed a man whose like it will not be easy to find.

A. W. H.

BARON KITASATO, FOR.MEM.R.S.

By the death of Prof. Kitasato on June 14, Japan has lost its foremost bacteriologist and the medical world one of its most successful workers.

Kitasato made several discoveries of first-rate importance. In 1889 he cultivated, for the first time in a pure state, the bacillus of tetanus, and clearly demonstrated the pathology of the disease, lockjaw, to which it gives rise. In 1890, Kitasato, conjointly with Emil Behring, made the great discovery of antitoxin in the blood of animals immunised against tetanus toxin, and thus laid the basis of serumtherapy. In 1894, Kitasato discovered, isolated, and cultured, for the first time, the bacillus of plague, and in a very exact manner and in an incredibly short time worked out the chief features of this organism so completely as to leave little for his successors to do on the pure bacteriology of plague. Kitasato published many other researches in German and Japanese. In all of his works available to readers of European languages he had always something fresh, and his results, obtained by exact methods, well recorded, have stood the test of time.

Shibasaburo Kitasato was born in December 1852 in the Kumamoto præfecture on the island of Kiushiu. He died in his seventy-ninth year. He studied medicine at Tokyo and graduated there in 1883. He was early a man of promise and (1885) was sent by the Japanese Government to Europe to study bacteriology and epidemiology. He settled at Berlin in the Hygienisches Institut under Robert Koch, then in the zenith of his powers. Kitasato remained six years with Koch. He was a man of exceeding diligence and worked in a room by himself all day and every day. He soon made himself master of the very exact bacteriological technique elaborated by Koch, and he owed a good deal of his subsequent bacteriological successes to his training in Berlin. During the German period of his life, Kitasato published a long series of bacteriological researches. They were almost uniformly good and some were brilliant. Kitasato set himself problems, performed the necessary, often laborious, experiments for their solution, made the correct inferences, and set out his results in model form for others to study and repeat. There was nothing 'woolly' about his work.

On his return to Japan in 1891, he founded a private bacteriological institute in 1892, and a year later it was subsidised by the Government of Japan. From 1899 until 1914 this great bacteriological institute—the Imperial Japanese Institute for Infectious Diseases—was directed by Kitasato with skill and success. Many of his pupils have attained a wide reputation in Europe.

For his valuable services to his country, Prof. Kitasato was chosen a member of the Japanese House of Peers in 1916, and was raised to the peerage with the title of Baron in 1923.

The impression he made was one of great dignity and seriousness, but he talked freely in German on bacteriological subjects. His knowledge of English was negligible.

Kitasato has created for himself by his high-class scientific work an enduring name not only in

Japanese medicine but also over the whole world. He was admitted a foreign member of the Royal Society in 1908.

W. B.

WE regret to announce the following deaths :

Lieut.-Col. Sir Charles Bedford, formerly director of the Central Excise Laboratory for India, known for his work on the manufacture and excise control of alcohol in India, on July 8, aged sixty-five years.

Dr. E. G. Echeson, known for his work in electro-metallurgy and chemistry, formerly assistant to Edison, on July 6, aged seventy-five years.

Prof. C. H. Kauffman, emeritus professor of botany and emeritus director of the herbarium of the University of Michigan, on June 14, aged sixty-two years.

News and Views.

ON July 25 occurs the centenary of the death of the astronomer, Fearon Fallows, the first director of the observatory founded at the Cape of Good Hope through the action of the Commissioners of Longitude. Born in July 1789, at Cockermouth, Cumberland, the birthplace of Dalton, Fallows was brought up to his father's trade of weaving, but by study and the assistance of a clergyman was able to become a school teacher and then to proceed to Cambridge. Entering St. John's College, he graduated as third Wrangler in 1813, Sir John Herschel being Senior Wrangler, and became mathematical lecturer at Corpus Christi College. On Oct. 20, 1820, he was chosen director of the proposed observatory at the Cape, and to him fell the lot of choosing the site and of installing the first instruments. Immediately on arrival in 1821, with small instruments made by Dollond and Ramsden, he began observations of the principal southern stars, the results of which are contained in his catalogue of 273 stars contributed to the Royal Society in 1824. Later on, he published an account of a series of pendulum experiments. His work was done with but little assistance and in discouraging circumstances. He himself suffered from the effects of sunstroke, and his death at the early age of forty-two years was brought about through scarlatina and dropsy. He died at the naval base, Simons Town, but his grave, marked by a slab of black Robben Island stone, is near the observatory. He left some four thousand observations, which were afterwards reduced by Airy. His successors at the Cape have included Henderson, Maclear, Stone, and Sir David Gill.

ON July 17, in the Public Library of Kingston-on-Thames, a portrait memorial tablet was unveiled to commemorate the work of Eadweard Muybridge, one of the pioneers of modern cinematography. Born at Kingston-on-Thames in 1830, Muybridge emigrated to America, and, joining the staff of the United States Coast and Geodetic Survey, he rose to be director of the photographic surveys. About 1872, a discussion arose among some horse-lovers at the Sacramento race-course, California, as to whether a horse ever had all

four feet off the ground at once. A wager having been made, Muybridge was asked to settle the point with the aid of the camera. Placing on one side of the track a long white screen and on the other twenty-four cameras, he stretched threads across the track which were broken by the horse and released the camera shutters. The results were conclusive and showed that a galloping horse did, at times, have all four feet off the ground. Muybridge's interest was stimulated by this work and he carried on his investigations, publishing a book, "The Horse in Motion", and inventing apparatus for projecting pictures at rates between 12 and 32 pictures a second. In 1880 he invented his zoopraxiscope; in 1881, in Paris, where he met Marey, he also produced moving pictures, and the following year he lectured on the subject at the Royal Institution. He died twenty-seven years ago, bequeathing his zoopraxiscope and lantern slides to Kingston Museum.

AT the ninety-ninth annual meeting of the British Medical Association held at Eastbourne on July 17-25, the president, Dr. W. G. Willoughby, Medical Officer of Health of the town, took as the subject of his address, "Public Health—To-day and To-morrow". Respecting to-day, the situation is not altogether satisfactory, for the Registrar-General's returns for England and Wales demonstrate that there are still far too many deaths at early ages; and that, though the vitality of the nation has steadily improved, the expectation of life is still only fifty-five years for males and fifty-nine years for females. Coincidentally with the 40,000 annual deaths of children who escape the risks of infancy, there must be a large amount of sickness among the survivors, causing much indifferent health and permanent physical defects. That this is so is confirmed by the reports of national health insurance and by the wholesale rejections of would-be recruits for the fighting services. In the outlook for the future, owing to the reduction in the birth and death rates, we now have to deal with a population increasingly older than in the past; and as the population becomes older the prospect of a further reduction