is particularly significant, because it also specifically blocks transmission through sympathetic ganglia[24], where chemical transmission seems to play a subordinate role[3].

In conclusion, it may be stated that the present hypothesis will have to stand up to many severe tests, particularly pharmacologically. Mathematical development has been beyond my competence and may be premature, though it should be possible; but the absence of quantitative prediction as regards intensity of action is a grave defect. Nevertheless, on the basis of the properties observed for peripheral nerve and muscle membranes, the hypothesis gives a statement of electrical transmission sufficiently precise (particularly as regards time course) for experimental testing, offers a coherent explanation of many previously unrelatable observations, only some of which are mentioned in this preliminary account, and has already proved fruitful in suggesting new experimental investigations.

I wish to thank Dr. K. R. Popper for his stimulating and helpful criticism.


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# OBITUARIES

## Dr. J. C. Merriam

THE death on October 30 of Dr. J. C. Merriam at the age of seventy-six will be deplored by all palæontologists and many other scientific men.

After a training under von Zittel in Munich, Merriam went to the University of California to teach palæontology and historical geology, and in time became professor and head of the Department of Geology.

Not long after his appointment, Dr. Perrin Smith, who was working on ammonites, gave Merriam some fragmentary remains of reptiles from the Upper Triassic Trachyceras beds of Shasta Co., North California. These proved to belong to Ichthyosauria, and Merriam based on them the first satisfactory account of any Triassic member of that group. The obvious importance of this find enabled Merriam to interest Miss Alexander, and with her help he was able to take expeditions into the field, which, in several years, not only collected much Upper Triassic material but also found new localities in Nevada where well-preserved Middle Triassic Ichthyosaurs could be collected. The whole material was described in an admirable monograph.

Merriam also recognized that some of his material was not ichthyosaurian but belonged to members of an entirely new order of aquatic reptiles, which he described as the Thalattosauria in another splendid monograph.

Dr. Merriam then turned his attention to fossil mammals, exploring the John Day region of Oregon, giving us an account of the stratigraphy, and descriptions of many new or little-known animals found in it. From this, led by an accidental find, he went on, with the aid of his students, to explore other regions of the western part of the United States, work of great importance because our knowledge of Tertiary mammals depends so largely on materials from the Plains and Great Basin of the Rocky Mountains, the whole country to the west having been barren.

Merriam's well-directed and long-continued explorations not only showed us many successive faunas from the west, but also in some cases gave us mammal faunas from rocks in a marine succession, and thus for the first time enabled us to correlate the terrestrial formation of the interior of the continent with the 'normal marine succession'.

In 1920, Merriam was appointed president and chief administrative officer of the Carnegie Institution of Washington, but he still retained his interests in palæontology, himself continuing to work on fossils and supporting the work of other men. After his appointment to Washington, Merriam became much interested in the problem of the time at which man first appeared on the American continent, drawing up a detailed discussion of the evidence in a report to the Sixteenth International Geological Congress in 1934. In this he showed that man had been a contemporary with some extinct mammals in America.

But Merriam's interests ranged widely: he wrote much on national parks, on the wide diffusion of culture among the 'common men', on many social problems of the modern world, and on spiritual values. He was in fact a man entirely worthy of the influential position he filled, and he was also a palæontologist of the first rank. D. M. S. WATSON.

## Prof. Velyien Henderson

WE regret to record the death of Prof. Velyien Ewart Henderson, of Toronto, on August 6 at the age of sixty-eight. Prof. Henderson was born and educated in Canada and took his M.B. at Toronto in 1902. After a period as demonstrator in the University of Pennsylvania he studied at Prague and at Marburg under Hans Horst Meyer. He was appointed demonstrator of physiology in Toronto in 1904, lecturer in pharmacology in 1906 and professor of pharmacology in 1909. Except for a period of service in the Canadian Expeditionary Force during 1916–18, he was at Toronto for the remainder of his life.

At Marburg, Henderson worked on diuresis and on the salivary glands. With Otto Loewi he discovered that the vasodilator nerves in the chorda tympani

are not antagonized by doses of atropine, which antagonize the corresponding effect of drugs acting like acetylcholine. This fact provides a complication in the theory of the mode of action of cholinergic nerves, and this topic provided Henderson with one of the interests of his life. In 1932, with Roepke, he demonstrated the liberation of acetylcholine in salivary glands on stimulation of the nerve chorda tympani, and much other work on this and allied drugs has come from his laboratory.

Henderson's main interest in recent years was in anæsthetics. With G. H. W. Lucas he was responsible for the discovery of the properties of cyclopropane as a general anæsthetic in 1929. Though it is difficult to make and administer, this gas has been widely used because it is a powerful anæsthetic without toxic actions and is rapidly eliminated. This discovery formed part of a prolonged pharmacological study of the properties of a number of similar substances. In addition to these major investigations, Henderson published papers on a wide range of other topics, including morphine miosis, expectorants, intestinal peristalsis, the respiratory centre, and the mechanism of erection. The late Sir Frederick Banting owed much to the encouragement given to him by Henderson in the early days of work on insulin.

Pharmacologists all over the world mourn the passing of a very lovable man who achieved much for the advancement of knowledge and the welfare of mankind.

J. H. GADDUM.

# NEWS and VIEWS

## Anniversary Meeting of the Royal Society

SIR HENRY DALE completed his term of office as president of the Royal Society at the anniversary meeting on November 30, and the main part of his address is printed elsewhere in this issue (p. 677). Speaking of domestic affairs, Sir Henry recorded the Society's thanks to the several people who undertook the guardianship of its historical treasures, now safely returned to London. He also announced that the Society is to increase the number of annual elections to twenty-five. Sir Henry himself, when he was a secretary of the Society, had a part in the movement which led in 1931 to the increase of maximum annual admissions to seventeen from fifteen, at which figure it had remained from the time when limitation was imposed eighty-three years before. In 1937, the number was raised to twenty; and now it is to be made twenty-five. This action has been taken in recognition of the recent rapid growth in number of those who have produced evidence of real scientific achievement. Sir Henry also referred to the election this year of two women to the fellowship of the Royal Society, following an alteration to the statutes to elucidate a legal position which had existed since 1919. He admitted that the decision was contested, but expressed his belief that the change was a normal adjustment of the Society's practice "to the growth in extent and distinction of women's contribution to the advancement of science by research".

The officers of the Royal Society as now announced are: *President:* Sir Robert Robinson; *Treasurer:* Sir Thomas Merton; *Secretaries:* Sir Alfred Egerton and Dr. E. J. Salisbury; *Foreign Secretary:* Prof. A. V. Hill; *Other members of Council:* Dr. C. H. Andrewes, Dr. W. T. Astbury, Prof. P. M. S. Blackett, Dr. E. C. Bullard, Prof. I. de B. Daly, Prof. R. A. Fisher, Dr. C. Forster-Cooper, Prof. F. E. Fritsch, Dr. S. Goldstein, Prof. E. L. Hirst, Prof. W. V. D. Hodge, Dr. G. M. Holmes, Prof. H. W. Melville, Prof. R. A. Peters, Dr. D. R. Pye, Prof. S. Zuckerman.

## Sir Robert Robinson: President of the Royal Society

SIR ROBERT ROBINSON, Waynflete professor of chemistry in the University of Oxford, who has just been elected president of the Royal Society, is recognized throughout the scientific world as one of the most outstanding and versatile of organic chemists. His researches not only embrace all fields of pure organic chemistry but also include notable contributions to subjects of biological interest, such as antimalarials and phthioic acid. As a research student under the late Prof. W. H. Perkin, Robinson was early initiated into the chemistry of the alkaloids and other natural products, and he soon became an outstanding figure in the famous Manchester school. The unique collaboration between Perkin and Robinson thus established was continued until the former's death in 1929. While still less than thirty years of age, as professor in Liverpool, Robinson published his famous synthesis of tropinone, noteworthy on account of its simplicity and intuitive brilliance. This was quickly followed by a theory of biogenesis of plant products which collated for the first time the apparently dissimilar alkaloidal structures and which still stands as one of the most outstanding contributions to the chemistry of natural compounds. Among other significant investigations in this field, mention may be made of Robinson's morphine formula, now universally accepted, and also his classical work on the elucidation of the structures of brucine and strychnine.

On his return to Manchester as head of the Department of Organic Chemistry and with more students available, Robinson's research programme rapidly expanded, and he turned his attention to the problem of the anthocyans, the naturally occurring pigments of flowers and fruits. The synthesis of these was achieved in a comparatively short time and constitutes possibly the most brilliant example of planned research in organic chemistry. Less widely recognized but of equal importance is his work on the synthesis of the anthoxanthins, whereby readily accessible routes were secured for the preparation of a wide range of many naturally occurring flavones, flavanols and *iso*flavones. In 1930, Robinson went to Oxford as Waynflete professor. By 1935 much attention was being focused on sterols and related compounds, and Robinson, together with his students and collaborators, embarked upon the difficult problem of the synthesis of the secondary sex hormones. Once again his mastery of synthetic methods has been demonstrated in a series of memoirs noteworthy for their freshness of approach. Arising out of this work, Robinson, in association with Prof. E. C. Dodds, was responsible for the discovery of stilbœstrol, the first synthetic œstrogen.

During the war years, notwithstanding much heavy and responsible work on behalf of the Government,