Cleveland, Ohio, where he remained until 1918, when he was elected to the chair of physiology at Toronto. During his later years at Cleveland, he was engaged in various duties arising directly out of the War of 1914–18. He also acted as professor of physiology at McGill University during part of the winter of 1916. After nine years at Toronto, he was appointed in 1928 to the regius professorship of physiology at Aberdeen, a post he was holding at his death.

Macleod's main interest and occupation throughout his academic life was, of course, the metabolism of carbohydrate. He published his first papers on experimental glycosuria in 1905, and between 1907 and 1917 a series of twelve papers under the general title of "Studies in Experimental Glycosuria" were published in the *American Journal of Physiology* as well as a series of eighteen papers between 1908 and 1921 dealing with other aspects of carbohydrate metabolism. Macleod had thus a full knowledge of practically all the phases of this field of metabolism and the intimate parts played in it by the main tissues and organs of the body. Thus equipped, he was both ready and willing in 1921 to put all the facilities of his laboratory and his unique knowledge of the subject at the disposal of the young investigator, F. G. Banting, who came to him with views on the isolation and preparation of the active principle of the internal secretion of the pancreas. The intensive research work which followed, in which two other collaborators deserve honourable mention, J. B. Collip and C. H. Best, culminated, as is well known, in the isolation of the active principle, insulin, from the islet tissue in such a pure form that it could be utilised as a medicament in practice. The original idea which started this particular piece of fundamental research in the Toronto laboratory was certainly Banting's, but, without the facilities and co-operation provided by Macleod and others, it is very doubtful if the investigation would have reached such early fruition. The marvel, indeed, is that such clean-cut and final results were obtained so speedily. The whole story is a testimonial to the value of team work ably directed to a single end.

Macleod's activities in the field of carbohydrate metabolism received a fresh impetus with the discovery of insulin, and most of his later experimental work was directed towards the mode of action of the active principle. His latest experiments were, in a way, a retrogression to the old ideas of Claude Bernard and his diabetic centre. Macleod had taken up the investigation of the nervous control of glycogenesis in the liver and had obtained some interesting and suggestive results.

Although Macleod's interests were centred on carbohydrate metabolism, he had from time to time carried out interesting investigations in other fields. He had published papers either alone, or in collaboration with others, on caisson sickness, the control of breathing, ventilation, the biochemistry of carbamates, phosphorus of muscle and on many other miscellaneous subjects. He published, in addition to several books dealing with insulin and carbohydrate metabolism, an original textbook, characteristic of the man's outlook, "Physiology and Biochemistry in Modern Medicine", which is now in its seventh edition.

In 1923 Macleod, jointly with Banting, was awarded the Nobel Prize in Physiology and Medicine, and in the same year was elected a fellow of the Royal Society. He was a fellow of the Royal Societies of Edinburgh and of Canada and a fellow of the Royal College of Physicians of London. In 1928 he was appointed Vanuxem Lecturer in the University of Princeton and in 1933 Herter Lecturer in Johns Hopkins University. He had been a member of the Medical Research Council (1929–33), past president of the Royal Canadian Institute (1925–26) and of the American Physiological Society (1922–23). He was a member of many learned societies, and held honorary degrees of several American universities as well as the LL.D. of his own Alma Mater.

As a man and a teacher Macleod was beloved by his friends and students alike. He was an excellent lecturer, lucid, happy and attractive. As a supervisor of research no one could have desired a more kindly and stimulating mentor. He was ever willing to listen and to help, no matter how slow the pupil, provided the worker was in earnest. As a man he was always happy, friendly and full of enthusiasm. He met every one with a cheery smile. He was an optimist who refused to be depressed by ill fortune ; and during the past four years he required all his optimism and cheeriness of spirit to stand up against his affliction. No one could have faced with greater patience and a braver spirit the handicaps placed upon him.

E. P. C.

Prof. R. O. Herzog

Prof. R. O. Herzog, who died at Zurich on February 4, made himself a name by discovering the microcrystalline structure of cellulose. He and Scherrer found it simultaneously and independently, when irradiating different kinds of cellulose fibres with X-rays. This observation gave an enormous impetus to the investigation of fibres and organic substances of high molecular weight : twenty years ago, for example, no one would have dared to write down the structural formula of cellulose or to consider the rigidity of a macromolecule containing oxygen bridges, subjects of lively discussions at many scientific meetings nowadays. Herzog himself, then the head of the newly founded Kaiser Wilhelm-Institut für Faserstoffchemie at Berlin-Dahlem, was most active in promoting this development, and his vivid imagination played from the beginning with ideas which have materialised in recent years. Michael Polanyi, Karl Weissenberg, Hermann Mark, Max Bergmann and Erich Schmid did research in his laboratory at Dahlem, and it was remarkable how successfully Herzog was able to collaborate with younger men.

The behaviour of substances of high molecular weight had always interested Herzog. He was one of the first to determine the diffusion constants of proteins and enzymes, and to become acquainted

with the anomalies of the diffusion of dyestuffs; his investigations concerning skin as an adsorbent, in correlation with the process of tanning, also deserve to be mentioned.

As to the technical work done by Herzog, his main efforts were concentrated on the literary side. He compiled a handbook of organic technology, and also edited a very comprehensive handbook series on the technology of textiles.

Herzog's intellect was keen, and his mind extremely versatile. It was striking how quickly he discerned the possible answers to a given question; owing perhaps to an artistic trend in his nature, he seemed to prefer a subtle and surprising explanation to simpler and more probable ones, and was sometimes right in doing so.

Born at Vienna on May 20, 1878, as the son of an influential journalist, Herzog took his degree at the University of Vienna in 1901. The following years he spent in Germany doing research work and commencing his academic career as *Privatdozent* at Karlsruhe in 1905. In 1912 he became professor of physiological chemistry at the German Technical Highschool in Prague, and from 1919 until 1933 he held the post at Berlin-Dahlem referred to above. He accepted in 1934 a professorship of chemical engineering at the University of Istanbul.

Many friends deeply regret to have lost so prematurely a man of his inspiring personality.

H. F.

WE regret to announce the following deaths:

Dr. Shepherd Dawson, principal lecturer in psychology, logic and ethics in Jordanhill Training College, Glasgow, known for his work on vision and statistical problems in psychology, on March 26.

Dr. Carl Duisberg, founder and chairman of the I. G. Farbenindustrie, known for his work in connexion with aniline dyes, on March 18, aged seventy-three years.

Prof. A. Hantzsch, formerly professor of chemistry in the University of Leipzig, who was an honorary fellow of the Chemical Society, on March 14.

Sir E. Sharpey-Schafer, F.R.S., emeritus professor of physiology in the University of Edinburgh, on March 29, aged eighty-five years.

News and Views

Differential Analyser for the University of Manchester

THE important new calculating machine, known as a differential analyser, presented to the University of Manchester by its deputy treasurer, Mr. Robert McDougall, and constructed by the Metropolitan-Vickers Electrical Co. Ltd., was opened on March 27. A distinguished gathering, presided over by the Earl of Crawford and Balcarres, Chancellor of the University, heard from Prof. D. R. Hartree, under whose direction the machine has been built, an account of how it is constructed and what it will do. Briefly, the object of this machine is the evaluation, by mechanical means, of solutions of ordinary differential equations; it is readily applicable to a very wide range of such equations, and in particular is not restricted to those which are linear. The original conception of such a machine was due to Lord Kelvin, and the first satisfactory working machine was designed and built by Dr. V. Bush at the Massachusetts Institute of Technology; this machine is quite distinct from one for solving simultaneous algebraical equations, also designed by Dr. Bush, of which mention has already been made in NATURE (Dec. 8, 1934, p. 877).

PROF. HARTREE mentioned the wide range of problems in pure and applied science to which the differential analyser could be applied, and said that he hoped to see it used, not only for investigations in pure science, such as the problem of atomic structure in which he was particularly interested, but also to work of technical and industrial importance as well. He paid a warm tribute to Mr. McDougall's munificence in furnishing the University with this powerful and important research tool, to Dr. Bush for his generous and friendly co-operation in its design, and to various members of the Metropolitan-Vickers Electrical Co. Ltd., who had been concerned in its design and construction. After brief speeches by Sir Kenneth Lee, who declared the machine 'open for business', Sir Henry Lyons, and Prof. Bragg, those present descended to the basement of the Physics Laboratory where the machine has been erected, and saw a demonstration of the machine in operation.

Lord Bledisloe and Maori Studies

AMONG the many public-spirited acts which have marked Lord Bledisloe's tenure of the office of Governor-General of New Zealand, few aroused more public enthusiasm than the gift to New Zealand by Lady Bledisloe and himself of the Waitangi Estate, the historic ground where the treaty between the British authorities and the Maoris was signed in 1840. To mark the ninety-fifth anniversary of the signing of the treaty, and to commemorate the gift of this land to the people of New Zealand, the New Zealand Numismatic Society, of which Lord Bledisloe is patron, has struck a medal in silver, bearing the head of Lord Bledisloe on the obverse, which was presented to him at a meeting of the Society held at Wellington on February 6. The presentation was made by the president of the Society, Prof. J. Rankine Brown. In accepting the medal, Lord Bledisloe expressed the hope that the nationalisation of Waitangi would help to promote in New Zealand the sense of nationhood, and referred to the work of the first governors, Capt. Hobson and Sir George Grey, "the great far-sighted pro-consul and racial pacificator". Lord Bledisloe went on to emphasise the