

experimented with a helicopter, but much of his work was of a confidential nature. He received the honour of C.B. in 1892, in 1906 was made a honorary member of the Royal Engineers' Institute, and in 1922 a foundation member of the National Academy of Ireland.

MR. C. J. MERFIELD

THE tragic death of Mr. Merfield as the result of a motor accident occurred on Jan. 23, 1931, but it did not become known in England until later. He was a very zealous and active worker, and undertook a large number of extensive astronomical computations. In his early career he was a surveying engineer, but even then he computed the orbits of comets in his spare time; the orbits of comets 1897 I, 1901 I, etc., were published in *Astronomische Nachrichten*. The last was a very bright southern comet; Mr. Merfield's elements, which indicate a period of 39,000 years, are accepted as definitive.

A few years later, Mr. Merfield joined the staff of the Sydney Observatory; he moved to Melbourne Observatory in 1908, and became chief assistant there in 1919, a position which he held until his death. He continued his work on comets, deducing an accurate orbit of Halley's comet from the early observations, and tracing the perturbations of the Pons-Winnecke comet for a long period, including its near approach to the earth in 1927. In his earlier years he had studied under Dr. R. T. A. Innes; it was doubtless at the suggestion of the latter that he performed the laborious task of computing the secular perturbations of Eros, Ceres, and Iris; these were published in *Astronomische Nachrichten* in 1907 and 1909.

Mr. Merfield was also interested in eclipses, and computed their circumstances in Australia and the neighbourhood; he observed the total solar eclipses of 1901, 1910, and 1911. His son, Mr.

Z. A. Merfield, is the Australian representative on the Solar Eclipse Committee of the International Astronomical Union. We are indebted for many of the above details to Mr. J. A. Moroney, president of the Astronomical Society of Victoria, of which Mr. Merfield was the first president on its formation in 1922.

PROF. HOLLAND CROMPTON, formerly professor of organic chemistry at Bedford College, London, who died on Dec. 22, 1931, was born in Preston, Lancashire, on April 30, 1866. He attended school in Stuttgart and later studied chemistry under Prof. H. E. Armstrong at the City and Guilds Institute. In 1888 he was appointed lecturer and head of the Department of Chemistry at Bedford College, London, in succession to Spencer U. Pickering. He held this post until 1919, when the department was divided, and from that date until his retirement in 1927, on account of ill-health, he was head of the Department of Organic Chemistry. Crompton never enjoyed robust health, and in his later years it became steadily worse. He will be remembered by both organic and physical chemists on account of his work on acenaphthene, atomic energy and the specific heat of gases, molecular association and molecular magnitudes, osmotic pressure and the electrolytic dissociation theory.

WE regret to announce the following deaths:

Prof. Clarence L. E. Moore, professor of mathematics in the Massachusetts Institute of Technology, Cambridge, Mass., who devoted particular attention to the geometry of the sphere and circle in space, on Dec. 5, aged fifty-five years.

Prof. R. Stenhouse Williams, first director of the National Institute for Research in Dairying, Shinfield, Reading, and research professor in dairy bacteriology in the University of Reading, on Feb. 2, aged sixty years.

News and Views

Determinism Defined

SIR ARTHUR EDDINGTON'S characteristically fascinating address on "The Decline of Determinism", which we publish as our Supplement this week, will be welcomed as a clear, unequivocal statement, by a leading authority, on a question which, even among the many revolutionary aspects of the new physics, holds a pre-eminent place for importance and interest. Such a statement is the more necessary because of the almost universal tendency for discussions of determinism to be concerned at bottom with words rather than ideas, and Sir Arthur has quite properly begun by stating definitely what he means by the determinism which he holds has declined. His thorough analysis leaves little room for disagreement, but many will wonder whether he has not achieved a Pyrrhic victory by conceding to the determinist the substance of his doctrine and destroying only the shadow. "The rejection of determinism is in no sense an abdication of scientific method", and "indeter-

ministic or secondary law . . . can be used for predicting the future as satisfactorily as primary law". In other words, Sir Arthur does not allow that the first Morning of Creation wrote what the last Dawn of Reckoning shall read, but he allows that it might have read what the last Dawn shall write. Even the most perfervid determinist will scarcely ask more. Furthermore, he acknowledges that he does not know whether Dirac, whose book "goes as deeply as anyone has yet penetrated into the fundamental structure of the physical universe", is a determinist or not. It would seem, therefore, that the determinism in question cannot be of much importance even in physics.

Physical Inference and Prediction

APPARENTLY, however, in spite of the unqualified statement concerning prediction quoted above, Sir Arthur denies that we can predict the behaviour of electrons more certainly than that of horses, and the importance, to all but the physicist, of the "decline