

Edward Osborne Fountain.

The Association has suffered a real loss by the death on 1934 November 25 of Dr. E. O. Fountain, erstwhile Treasurer, an original member of the Computing Section, and a frequent and valued contributor to the *Journal*.

Born in 1857 at West Drayton, he was educated at Marlborough, whence he went to Pembroke College, Cambridge. In the mathematical tripos of his year he was seventh wrangler. He then entered St. Bartholomew's Hospital as a medical student, and later took the degree of M.D. at Brussels. He continued in practice till 1913, when he retired and settled in Ruislip. During the War he was the first special constable to enrol in Ruislip, and also became one of the doctors at the Eastcote Hospital for wounded soldiers.

Dr. Fountain joined the Association on 1918 October 30, and almost immediately afterwards there appeared the first of his

contributions, which eventually exceeded thirty in number. In several of these he brings his medical knowledge to bear on subjects then under discussion, but in the great majority he applies dynamical mathematics of a high order—forty years after his Cambridge days. Two contributions were in verse; one, "A Message from Mars?" was inspired by the attempts to interpret as extra-terrestrial various unexplained ether waves; the other, "Relative Immortality," shows the influence of the then fashionable relativity theory.

One of Dr. Fountain's favourite subjects was the surface of the Moon; he was an upholder of the meteoric hypothesis of the origin of the lunar craters. In 1921, in which year he was elected a Fellow of the Royal Astronomical Society, he proposed an ingenious way of solving directly, with the aid of addition and subtraction logarithms, the cubic equation in $\tan \frac{1}{2}\nu$ that occurs in the process of finding the true anomaly in a parabolic orbit. This drew from Merfield the comment that the hyperbolic sine could also be used for a direct solution, whereupon Dr. Fountain showed that all cubics could be solved directly by circular or hyperbolic functions. A conclusion that "whatever may be the rate of rotation of Venus, tidal action can have had no effect in bringing it about" was supported by Jeffreys. The last paragraph of a study "On Saturn's Rings and Roche's Limit" is worth quoting. "To sum up then, there does not appear any incontrovertible objection to the following speculation. At one time Saturn had within the orbit of Mimas another satellite. It was probably a comparatively large one, and, like Saturn itself, contained much water in its composition. It had for long been pulled out by tidal action into the form of a prolate spheroid, the same end being always turned towards the primary. By meeting with, and incorporating with itself, cosmic dust (travelling in all directions) in the course of ages its angular momentum, and therefore the radius of its orbit, were continually diminished until at last (perhaps not many thousands of years ago) gradually becoming more prolate, it reached a state which would be unstable for small displacements, and broke into fragments which, if liquid, soon froze into solid bodies, the largest being of such a size that they could still hold together by cohesion. The gradual separation into separate rings, their expansion, their thinning down to one plane, the comparatively marked outer edge, and the formation of the crepe ring, have been explained as due to collisions, the disturbing action of other bodies, and the continuance of the encountering of cosmic dust."

References in current literature called forth a paper on the fallacies of the Draysonian theory. In a note on Mars the reddish colour was accounted for as follows: Arrhenius pointed out that some of the solar radiations that do not penetrate to the lower layers of the atmosphere have the power of decomposing water. The resulting hydrogen escapes more rapidly from a light planet such as Mars than from a heavier planet, leaving the oxygen. Friction through an atmosphere containing oxygen would ignite meteoric dust, and convert it to ferric oxide, which is red.

In a paper "A Possible Cause of the Gain in Periodic Time of a Comet," he suggests, as an alternative to the resisting medium hypothesis, that tidal forces change the shape during the revolution, with consequent friction and development of heat; the only possible source of energy to supply this heat lies in an approach of the comet to the Sun. He shows that the conditions under which acceleration of the mean motion may be expected to be detected are all fulfilled by Encke's comet, but not by others. Other papers dealt with the mechanism of spiral nebulae, the stellar conversion of matter into energy, and the nature of the orbits described in a stellar encounter such as that postulated by Jeans in his theory of the origin of the solar system. In his last paper (1932 June) on "A Limit to the Possible Distance of Major Planets" he suggests that Pluto is the commencement of a region occupied by a second set of asteroids, and that it would be useless, in searching for the cause of irregularities in the motion of any planet, to look for a single unknown outer planet of large mass.

Dr. Fountain was a scholarly and cultured man, with a charming personality, who endeared himself to all who knew him. His record of service to the Association may truly be described as inspiring.—L. J. C.