

*Edward Walter Maunder.* (See Plate.)

ANOTHER link with the early days of this Magazine has been severed by the death of E. W. Maunder on March 21. He was born in April 1851, and educated at University College and at King's College, London.

He was appointed an Assistant at the Royal Observatory in 1873, and was thus under Sir George Airy for eight years. His work throughout was of a physical character. The introduction of solar photography at Greenwich was synchronous with his entry there, and he was in charge of that department throughout his whole period of service. Three principal researches stand out in his solar work:—(1) A redetermination of the position of the Sun's axis led to a result almost identical with that of Carrington, but entitled to higher weight, owing to the greater extent and accuracy of the material employed. (2) A study of the motion of the spot-zones in latitude in the course of the 11-year cycle; this research convinced him that this cycle is the only one that has a real existence—he had no belief in the 4-year cycle and some others that were announced on the basis of periodogram analysis. The well-known "Butterfly Diagram" gives a graphic representation of this research, and makes it evident that the shift in latitude follows the 11-year cycle exclusively. (3) He showed that there was a strong tendency for magnetic storms to recur after the period of the Sun's synodic rotation, and concluded that the storms are produced by streams of electrified particles discharged along definite stream-lines from disturbed regions of the Sun.

Maunder also worked from 1875 to 1891 on the spectroscopic determination of the motion of stars in the line of sight from visual observations with the Merz Equatorial. However, it gradually became evident that photographic methods were far superior to visual ones in this research, and the work at Greenwich was brought to an end with the installation of the 28-inch equatorial in 1892.

Maunder had considerable experience of total solar eclipses. In 1886 he went with Father Perry to Carriacou, West Indies, where he secured good photographs on which a remarkable prominence was pictured; they were used by W. H. Wesley for one of his composite drawings of the corona.

Maunder took a leading part in organising the B. A. A. Expedition to Vadso, Lapland, in 1896, but clouds frustrated all work

of astronomical value. In the expedition to Talni, India, in 1898, successful trial was made of Sandall triple-coated plates, on which Mrs. Maunder secured a photograph of a coronal streamer several degrees in length. In 1900 he led another B. A. A. Expedition to Algiers, the weather being perfect. In 1901 he went to Mauritius, where, in spite of some cloud, good photographs were obtained; he also made some observations of the bright southern comet of that year. Unfortunately, his health suffered considerably from the climate. His last eclipse expedition was to Labrador in 1905, by invitation of the Canadian Government. The weather was unfortunately hopeless.

Maunder's association with this Magazine began in 1881, when W. H. M. Christie, who had been sole Editor, asked him to co-operate; he became sole Editor in 1883, but two years later he invited the co-operation of Downing and Lewis, their joint editorship lasting till 1888, when Prof. Turner and Dr. Common took it over. It is noteworthy that this Magazine played a leading rôle in one of Maunder's chief achievements, the founding of the British Astronomical Association. A letter from W. H. S. Monck appeared in its columns in August 1890, suggesting the foundation of a Society for amateurs, with its headquarters in London. This was like the application of a match to a ready-laid fire, for in the very next number Maunder was able to announce that the foundation of the proposed Society was already assured—in fact, it held its first meeting on October 24, when Capt. Noble was elected President, Maunder himself being Editor; his brother, T. F. Maunder, became Assistant Secretary, a post which he still holds, though he has handed in his resignation for the close of this session. Maunder was the third President; in this capacity he led a large party to northern Norway for the eclipse of 1896; though clouds veiled the corona, the expedition did valuable work in helping members to know each other and exchange ideas about their work. The membership at that time went into four figures, reaching a maximum of 1159 a little later. Maunder was Director of the Solar Section of the Association for many years, and was almost continuously on its Council. He took a prominent part in the work of the Mars Section, which he directed for some years; his experiments in co-operation with J. E. Evans with a class of boys, who were given drawings to copy at various distances, led him to the conclusion that the apparent regularity of the canals was an optical illusion arising from the presence of minute detail which the retina could not define.

Maunder also took a prominent part in the work of the Royal Astronomical Society, of which he was Secretary from 1892 to 1897 and afterwards Vice-President. He contributed numerous papers on sun-spots, eclipses, and spectroscopy, also one (conjointly with his wife) on the astronomical revolution that occurred about B.C. 700, when Aries was recognized as the first sign instead of Taurus.

His first retirement from the Royal Observatory took place in 1913, but he returned during the War, when the staff was short-handed. After his retirement he was Secretary of the Victoria Institute, in which he took a keen interest. He took the Chair there just before the beginning of his last illness, when Dr. Dorothy Wrinch lectured on earthquakes.

His literary work included 'The Royal Observatory, Greenwich' (1900), 'Astronomy without a Telescope,' and 'The Astronomy of the Bible' (1908). The first of these gave a good deal of information about the work of the Observatory that was previously inaccessible to general readers. The third contained much original work on the origin of the constellations, the ancient methods of determining the beginning of the year, the astronomical interpretation of Joshua's long day, etc.

He also edited the B. A. A. Reports of the eclipses of 1898 and 1900, a considerable portion of each coming from his own pen. He conducted the astronomical portion of *Knowledge* for some time. For many years (latterly with the help of his wife) he contributed a monthly astronomical page to the *Daily News*.

Maunder's work for astronomy is not limited to the contributions that stand in his name. His enthusiasm inspired many others with zeal for the science, and he was ever ready to help them both by word and by correspondence. Only a few days before his death his wife asked me to answer a letter from New Zealand referring to former help he had given on eclipse cycles, and showing that the writer had been led to continue the subject and make useful investigations.

Maunder was twice married: in 1875 to Edith Hannah Bustin, who died in 1888; three sons and two daughters survive—the latter took part in the Algiers Eclipse Expedition in 1900. In 1894 he married Annie S. D. Russell, who had been at the Royal Observatory as lady computer since 1890; she has since then been closely associated with all her husband's astronomical work.

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