MERVYN ARCHDALL ELLISON

Through the untimely death of Professor M. A. Ellison on 1963 September 12, solar observational research has suffered a great blow, and Dunsink Observatory has lost a Director of international repute. The impressive amount of work that he was able to accomplish in a shortened lifetime, first as an amateur of distinction and then as a professional astronomer, stems from the astronomical background of his early years.

Mervyn Archdall Ellison coming from a well-known Irish family, was born on 1909 May 5, at Fethard-on-Sea, County Wexford, where his father, the future Canon W. F. A. Ellison (who was also the rector of nearby Tintern) had a private observatory. When Mervyn was 9 years old, his father was appointed Director of the Armagh Observatory and the Ellison family moved there. Hitherto young Ellison had received tuition at home, but now he entered the Armagh Royal School where his ability was soon recognized. But at home, he was thrown very much on his own resources. His elder brother was more than seven years his senior, and his eldest brother had been killed in action in the World War. His mother never recovered from this loss. Mervyn was allowed, however, access to the observatory, and because of his promising skill was allowed to use his father's 6-inch refractor and later the Armagh 10-inch refractor. These circumstances may well have contributed to the shy, silent and reserved side of his character that some people may have found difficult to penetrate. Ellison's observation book shows that he was drawing details of sunspots at the age of 13, followed later by quite beautiful drawings of the surface markings of Mars and Jupiter. At the age of 16 a paper of his, on measures of double stars made with the 10-inch refractor, was accepted by the Royal Astronomical Society for publication. In 1927 on gaining a sizarship to Trinity College, Dublin, he went there to study physics under Professor Ditchburn. Ellison is remembered as an undergraduate of high promise and of considerable achievement for his age; he developed a mastery of technique and also showed great originality. Becoming a Scholar of the House in 1930, he took a First Class Honours Degree in Experimental Science in the following year, with the distinction of a gold medal. As a Fitzgerald Research Scholar he worked in 1931–32 on radium emanations for the Dublin hospitals. During the same period he was President of the University Philosophical Society. He received the degrees of M.Sc. in 1932 and Sc.D. in 1944.

Throughout his time in Dublin his thoughts rarely left astronomy, and he would have liked an observatory appointment had there been a

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vacancy. Instead he went to Sherborne School, Dorset in 1933 as senior science master. A year later he married Patricia, only daughter of Crosthwaite Herron, M.D., of Armagh. These were happy days at Sherborne in the gracious setting of the old town, the Abbey and the School. Here were born their three children—a son and two daughters.

Meantime, the sunspot minimum had passed, and activity was rising. Ellison had no doubts now as to what he wanted to do. He had been fascinated by the description of the spectrohelioscope and its work by Dr G. E. Hale in the *Astrophysical Journal.* An instrument of the Hale design had been sent to the Royal Observatory, Greenwich in 1929, on loan from the Mount Wilson Observatory. Several papers on the results obtained with the Greenwich instrument had already been published in *Monthly Notices.* Ellison decided to construct his own spectrohelioscope as A. M. Newbegin and F. J. Sellers were doing; in his case this meant making his own mirrors and lenses. When the second World War began he had completed his instrument, although some modifications and an important addition were to be made later.

Besides his duties at Sherborne School, he organized the Air Cadet Training Corps, for two years for Dorset, and then went to the Admiralty to serve in the Operational Research Group under Professor Blackett. Before leaving Sherborne, however, he had been able to make observations of the radial motions of Hα absorption markings, and the results were published in *M.N.*, **102,** 11, 1942.

When Ellison returned a very high sunspot maximum was in progress. To his spectrohelioscope, housed in the school grounds, he now fitted a spectrograph, which could quickly be switched into the optical train whenever chromospheric activity could be located with the visual part of the combined instrument. On 1946 July 25 he secured a superb spectrum of a great flare over a giant sunspot, showing the Hα line in emission extending for 20 angstroms. His study of the spectrum of this flare (given in *M.N.*, **106,** 500, 1946), is a valuable contribution to a subject that deserves fuller investigation. He also made visual measures of the line-widths of Hα at frequent intervals, so that the curve of growth and decline of the flare could be represented. He found that in this and other intense flares the high maximum was of short duration, lasting only a very few minutes. He called this the "flash of radiation". Throughout the later work that he did at Edinburgh and at Dunsink, we can trace his set purpose to improve the "development" curves of flares as accurately as possible, for comparison with comparable curves of sudden ionospheric disturbances, geomagnetic "crochets", solar radio "noise" and, on rare occasions, bursts of cosmic radiation.

Ellison began his professional career in 1947, with his appointment as

a Principal Scientific Officer at the Royal Observatory, Edinburgh. The Astronomer Royal for Scotland, Professor Greaves, generously agreed to the remounting of the Sherborne instrument within the observatory, so that Ellison could continue with his studies of solar flares and prominences. He adopted the photometric methods for measures of flare brightness, in order to derive development curves of greater accuracy. For the better comparison of flares with sudden ionospheric disturbances, he used a long-wave recorder for sudden enhancements of atmospherics, that were known to be closely related to short-wave fade-outs. Such investigations might be considered as being complementary to those carried out at Greenwich in 1944 on the relation between solar flares and geomagnetic storms. Papers in *Publications of the Royal Observatory, Edinburgh*, Vol. 1 Nos. 4 and 5, Vol. 2 No. 2, and *Monthly Notices*, give the results of Ellison's work during the eleven years he was in Edinburgh. Besides his observing duties, he was often invited to lecture at the King's Buildings, where Sir Edward Appleton had his research team. Possessing a gift for lucid exposition, Ellison also gave broadcasts and television interviews on solar phenomena and their relation to the ionosphere. For five years Ellison was a joint editor of *The Observatory*, and he contributed to other scientific journals, articles ranging from his own work to observations of the "blue sun", a brilliant aurora, and a halo display, all seen from Edinburgh. In 1954 his book *The Sun and its Influence*, was published. In the same year, on June 30, he observed the total eclipse of the Sun from an aircraft over Iceland.

By now, Ellison was a well-known figure at I.A.U. meetings, all of which he attended from 1946 as a member of Commission 11. From 1955 he became a delegate member of the committee for the study of solar–terrestrial relationships under the International Council of Scientific Unions. Later, he was appointed solar reporter for the International Geophysical Year. With the approach of the I.G.Y. (to begin in 1958 July), sanction had been obtained to erect an automatic Lyot heliograph at the Royal Observatory, Cape of Good Hope, as part of Great Britain's contribution to the enterprise. Early in 1958 Ellison went to the Cape to install the instrument, and two months later the automatic recording of the Sun's disk in Hα light began.

The Astronomer Royal for Scotland having died suddenly in 1956, Ellison continued to act as deputy Director of the Observatory. Then in 1958 November, in succession to Professor Brück, he was appointed Director of Dunsink Observatory, County Dublin, and Senior Professor of the School of Cosmic Physics of the Institute of Advanced Studies.

During the I.G.Y., the Cape patrol was one of several contributing to the minute-to-minute survey of chromospheric activity. The study of the

Cape films at Dunsink, besides fulfilling this purpose, were also utilized to further three investigations described in *Publications of the Dunsink Observatory* (Vol. 1 Parts 1–3) under the joint authorship of Ellison and two members of his staff (Susan McKenna and J. H. Reid). Corresponding papers appear in *Monthly Notices*. The first paper represents Ellison's culminating work on development curves of flares. In the second paper, a newly discovered feature called the "flare nimbus", is described, and the implications are discussed. The last paper is a critical study of ten flares (each showing a "flash of radiation") that generated bursts of cosmic rays recorded at ground level. This was the subject of a lecture given by him at the Royal Institution in 1961.

A heavy task awaited Ellison at the conclusion of the I.G.Y. He had accepted the general editorship for the publication of daily charts, in which the collated data of every solar feature were represented. This great work comprises Vols. XXI and XXII of the *Annals of the International Geophysical Year*. The impress of a great observer and organizer is shown in this basic solar record, which will be a lasting memorial to him.

A break from all this work was given by an invitation to visit the World Data Centre and other scientific centres in the United States, and in 1960 he and his wife made an extended visit. In 1963 he was making plans for the International Quiet Sun Year, and he was to have been Chairman of the committee meeting at Berkeley, California in June. He had reluctantly to cancel his attendance on account of the illness which later proved fatal.

Mervyn Ellison was elected a Fellow of the Royal Society of Edinburgh in 1948. He was elected a Fellow of this Society in 1938, and served on the Council from 1940 to 1950.

H. W. NEWTON

GEORGE RIDSDALE GOLDSBROUGH

George Ridsdale Goldsbrough, who died on 1963 May 26, was well known for his mathematical researches into the theory of Saturn's rings and the dynamical theory of tides.

Born in Sunderland, Co. Durham, in 1881, Goldsbrough was a student at Armstrong College (now the University of Newcastle-upon-Tyne) from 1900–03, and after graduating was for a number of years a school teacher. His natural ability for research developed during this period and led to his appointment to a lectureship in Mathematics at Armstrong College in 1919. He was soon made reader in dynamical astronomy, and then, in 1928, Professor of Applied Mathematics, which post he held until his retirement in 1948. He was Sub-Rector from 1942–47 and