

Sir Frank Dyson, K.B.E.,

*Astronomer Royal 1910-1933.*

Frank Watson Dyson, ninth Astronomer Royal, was born 1868 January 9, the son of the Rev. Watson Dyson, Baptist minister. He was educated at Bradford Grammar School whence he gained a mathematical scholarship at Trinity College, Cambridge. He was second wrangler—in the Mathematical Tripos—in 1889, and was elected a Fellow of his College in the following year. Two years later he was appointed Isaac Newton Student.

In 1894, at the invitation of Sir William Christie, then Astronomer Royal, Dyson took up the post of chief assistant at the Royal Observatory in succession to Turner who had been elected Savilian Professor of Astronomy at Oxford.

From 1894 to 1905 Dyson remained at Greenwich as Chief Assistant. In 1905 he was appointed Astronomer Royal for Scotland, and held that office until 1910, in which year he returned to the Royal Observatory, Greenwich, as Astronomer Royal, on the retirement of Sir William Christie.

When Dyson came to Greenwich as Chief Assistant in 1894 the work of the Astrographic Chart and Catalogue was occupying much attention. Although a great deal had been done—particularly by Dyson's predecessor, Turner, to whom the method of reduction familiarly known as "Standard Co-ordinates" was due—it was not until after Dyson's coming that regular routine work on the measure-



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ment and reduction of the Catalogue plates was started. To everything connected with the work he brought his enthusiasm and sense of what was practical. As an example, may be noted his method of determining the plate constants which avoided a lengthy solution of equations by the method of least squares. Not only was the work of measuring the plates pressed forward, but before he went to Scotland the reproduction of the Chart Plates was in train and he had published (in collaboration with Mr. Hollis) some statistical results based on counts of the stars shown on the Chart Plates. The experience thus gained in connection with the astrographic work was naturally of the greatest use when the Royal Observatory took its part in the programme of observations of Eros during the opposition, 1900-01, for the determination of the Solar Parallax. But he did not allow his whole attention to become absorbed in the photographic work of the observatory. He was equally keen on the Meridian work and his great interest in this branch of astronomy is well exemplified by the work he accomplished—in collaboration with Mr. Thackeray—in the re-reduction of Groombridge's Catalogue of Circumpolar Stars. This new reduction served to determine the Proper Motions of 4250 stars, and others have pointed to it as his greatest piece of work at that period in his career.

Whilst chief assistant he went on three Eclipse Expeditions—1900 (Portugal), 1901 (Sumatra), 1905 (Tunisia), all of which were favoured with fine weather. On these occasions he made valuable spectroscopic observations.

In 1905 he was appointed Astronomer Royal for Scotland. Whilst at Edinburgh he contributed two important papers on the subject of star-streaming, basing his investigation on stars with large proper motions, and confirming Kapteyn's results.

Dyson returned to Greenwich in 1910 as Astronomer Royal, and remained there until his retirement in 1933. It would require far more space than is available for this memoir to give a detailed account of the work carried out under his direction. We have mentioned his interest in the astrographic work. To the two volumes forming the Catalogue a further four were added. Two of these contain Right Ascensions, Declinations, Magnitudes and Proper Motions of the Reference Stars and others of the brighter stars shown on the plates. Volumes five and six contain Proper Motions determined from a comparison of the original series of plates with a new series taken through the glass and includes all stars having proper motions of about three seconds of arc per century and over.

With the Thomson 26-inch Refractor a regular programme of observations to determine stellar parallaxes was commenced, the region chosen being that of the Greenwich astrographic zones, viz., Decl.  $+64^{\circ}$  to  $+90^{\circ}$ . One recalls his work on the Groombridge Catalogue and an investigation he carried out soon after his return to Greenwich when he wrote a paper on the distribution of stars in space, based on a discussion of the Proper Motions of the stars in

Carrington's Catalogue. It results from all this that there is no region in the whole sky for which our information is so complete as the astrographic zones allotted to Greenwich  $+64^{\circ}$  to the N. Pole.

When to this is added the record of Meridian work; the observations made with the Cookson Floating Telescope for the variation of Latitude; the work in connection with the new magnetic observatory at Abinger; observations of Double Stars with the 28-inch refractor; the introduction of free-pendulum clocks and the systematic reception of Wireless Time Signals and all that it implied in the installation of wireless receiving apparatus—the programme of work carried out was truly a formidable one. Nor must we forget that he initiated the Broadcast time signal—the six pips; which has made it so easy, not only for the public, but also for amateur astronomers to obtain Greenwich time. We have mentioned his going on Eclipse expeditions whilst chief assistant. On two other occasions he accompanied expeditions—and again was favoured with fine weather. But in connection with Solar Eclipses there is one matter which will always be remembered. It is due to his persistence and energy that two expeditions were sent to observe the Total Eclipse of the Sun of 1919, with the result that the predicted deflection of light by the Sun's gravitational field was verified.

We cannot omit to mention the 250th anniversary of the foundation of the Royal Observatory, which occurred in 1925. On that occasion—which fell at the time when the I.A.U. was holding its meeting at Cambridge—the observatory was honoured with the visit of their Majesties King George V and Queen Mary.

Dyson was President of the R.A.S., 1911–13, and his services on the Council and as Treasurer, as well as on the Council and as President of the B.A.A. are well known to members of the Association. Honours came to him in due course. He was awarded the Royal Medal of the Royal Society in 1921, the Bruce Gold Medal of the Astronomical Society of the Pacific in 1922, and the Gold Medal of the Royal Astronomical Society in 1925. He was the first recipient of the Gold Medal of the British Horological Institute, which was awarded to him in 1928. He was a member of the Court of the Clock-makers Company, and a Past Master of the Company.

He received the honorary degrees of LL.D. (Edinburgh), D.Sc. (Oxford), and Sc.D. (Cambridge).

In 1915 he received the honour of Knighthood and was created K.B.E. in 1926.

On his retirement the instrumental equipment of the observatory was enriched by the addition of a 36-inch Reflector, with spectroscopes, building and dome (the gift of Mr. W. Johnson Yapp) as a tribute to his successful directorship.

Outside his official duties Dyson took a deep interest in many Greenwich charities (on which he served by virtue of his office as Astronomer Royal), on the Parochial Church Council, and on a number of other local committees.

His varied interests were shared to the full by Lady Dyson, and truly may it be said that they both gave generous service—service worth the while—service that will be missed.

He married Caroline Best, daughter of Mr. Palemon Best, M.D.: she predeceased him in March 1937. Sir Frank died on 25th May 1939 whilst on a voyage from Australia to S. Africa, and was buried at sea. They are survived by two sons and six daughters.

And so we come to the end of what we do recall. It may be that we have missed much which might—and should—have been recorded. Time passes—and Greenwich may justly say that with the passing of the ninth holder of the office of Astronomer Royal, the distinction conferred in 1675 at the foundation of the Royal Observatory and the coming of Flamsteed, was handed down undimmed.—P. J. M.