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Charles Rundle Davidson, 1875-1970

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C. Davidson

CHARLES RUNDLE DAVIDSON

1875-1970

Elected F.R.S. 1931

CHARLES RUNDLE DAVIDSON was born on 28 February 1875 and educated at Christ's Hospital. He joined the staff of the Royal Observatory, which was then at Greenwich, on 10 March 1890, and was established as a Computer on 1 June 1896. He spent the whole of his working life at the Royal Observatory and retired on 31 August 1937, after more than 41 years' established service. He died on 18 June 1970.

When Davidson joined the staff of the Royal Observatory it was sharply divided into senior and junior ranks, and Davidson was a junior. Nevertheless he established a reputation for ability to handle equipment which was so great as to elevate him to the recognized position of the Observatory's arbiter on all instrumental matters, and Dyson in particular relied on Davidson absolutely to supervise the later eclipse expeditions which Dyson made such a feature of the work of the Royal Observatory. In all, Davidson went on eight eclipse expeditions, of which the most famous was the eclipse of 1919, at which the Einstein effect, that is to say the deflexion of starlight passing the limb of the Sun, was first found. The whole matter was extremely important in establishing the relativity theory, and the expeditions of 1919, of which there were two from Greenwich, were given great prominence in Eddington's writings.

Eddington and Cottingham went to the island of Principe off the coast of Africa, and Davidson and Crommelin went to Sobral in North Brazil. At Principe the sky was partly clouded but some star images were found on the plates. At Sobral the observers were favoured with fine weather.

In discussing the observations (*Phil. Trans. R. Soc. Lond.* **220**, 291 (1920), Dyson, Eddington & Davidson) the conclusion was drawn that they verified Einstein's prediction of a deflexion of $1.75''$ at the Sun's limb. The result was of such importance that it was carefully scrutinized and indeed criticized by some writers, and further observations were made at subsequent eclipses. Both Eddington and Dyson, however, believed that the Greenwich expeditions of 1919, and especially that of Davidson, had shown that there was a displacement as required by the relativity theory.

Another successful eclipse expedition of Davidson's was that of 14 January 1926, which he observed with Stratton in Sumatra. This time the emphasis

was on the spectroscopy of the chromosphere and on the distribution of intensity in the corona.

Davidson had a long association with stellar colour photometry actually carried out at Greenwich despite the unfavourable climate. He published with Martin observations of stellar effective wavelengths made with a grating, these effective wavelengths being a measure of colour. Later Greaves, Davidson and Martin published a very important series of observations of stellar colour temperature which were made with a slitless spectrograph placed at the Cassegrain focus of the 30-inch telescope and later at the same focus of the 36-inch telescope. Despite the fact that these measurements were made in the bad atmosphere of Greenwich itself, they remained for many years the standard observations of stellar colour. They were in fact absolute, as they were standardized by careful calibration with the best laboratory standards available.

When Davidson retired the then Astronomer Royal, Spencer Jones, made the following tribute to him, which appears in the Report to the Board of Visitors for 1938.

'It is not possible to state how much the Observatory has owed to Mr Davidson, who for many years was in charge of the various programmes of observations with the 26-inch refractor and the 30-inch reflector. With a flair for the design of apparatus, he was consulted on many matters of design outside his own department. He had an unusual degree of skill in the adjustment and testing of optical apparatus and would always obtain the best possible results out of any given equipment. The design and supervision of construction of apparatus for use by general eclipse expeditions from the Royal Observatory was entrusted to Mr Davidson.'

Although Davidson retired from the Royal Observatory staff more than 30 years ago there are still some Greenwich men who remember him very well, not only because of his extreme skill with instruments but because he held strong principles yet was sensible enough to compromise. He had a dry sense of humour, and was very fair in his treatment of his juniors.

Davidson was elected a Fellow of the Royal Society in 1931.

The photograph is by W. Stoneman.

R. WOOLLEY