WOLSINGHAM OBSERVATORY.

REPORT FOR 1890.

During the Spring the revision of the proofs of the last pages of the new edition of the "Red Stars" was completed, and this work, which has been carried on since 1886, has been published by the Royal Irish Academy.

The search for stars with remarkable spectra has been continued during the year. Some 70 have been detected, bringing up the total to 530. During this year only four stars of Type IV have been detected, three of these are so faint as to leave some uncertainty as to their classification. The special study of certain variable stars has also been continued. The most interesting results are the establishment of the variation in the spectra of R. Scuti and R. Coronæ. The first varies from a scarcely perceptible third type to a normal third; the second from a continuous first type to a spectrum, which resembles the fourth type—as would be anticipated there is a marked variation in colour. The variable stars—R. Aurigæ, S. Coronæ, and possibly R. Bootis,—have been found to have spectra resembling Mira, viz: bright hydrogen lines without F. These observations, however, need confirmation. Some attempts have been made at photographing the spectra of stars, but for want of proper apparatus the results have not been satisfactory.

As regards educational work, the Observatory has been open to the public on certain nights, and the number of visitors has been considerable. Five popular lectures—three on Electricity and two on Astronomy—have been given. Several invitations to lecture have had to be declined for want of time.

Considerable reduction has been made in the debt on the Observatory, and it is hoped that we may be practically clear by the end of the year; it will then be possible to obtain more efficient instruments. My thanks are due to many kind friends for help in this respect, and also for the large number of valuable books contributed to the library. During the year a photo-lens of five inches aperture has been obtained; and in December, Miss E. Brooke generously presented to the Observatory a fine set of meteorological instruments. These include a mercurial barograph, by Redier; standard barometer; maximum and minimum, wet and dry, bulb and grass thermometers; a rain-band spectroscope; a rain gauge. Miss Brooke has further signified her intention of adding an anemometer and sunshine recorder, etc. The height of the Observatory is about 1000 feet above the sea.

Two new variable stars were discovered last year and announced by circular.

The results of spectroscopic work during the year, including the bringing up of the star places to 1890, have been forwarded to the Astron. Nachricten. The instruments continue in a satisfactory state.

The cost of the Equatorial and new Observatory was £300, and the following sums have been subscribed :—

	£	s	d
Rev. T. W. Webb	100	0	0
At West Kirby, as Testimonial	35	0	0
Mrs. Willoughby	10	0	0
A. Jessop, Esq.	5	0	0
Miss Compton	2	0	0
T. E. Espin	118	0	0
	£270	0	0

Other gifts to the Observatory are :—A $4\frac{3}{4}$-in. equatorial with clock, circles, etc, position micrometer, transit eye-piece, etc., from Canon Slatter; an astronomical clock from Mrs. Espin; meteorological instruments from Miss Brooke.

Contributions to the library have been received from the following Observatories :—Harvard, Washington, Morrison, Cincinnati, Warner, Dearborn, U.S.; Kiel, Christiania, Leyden, O'Gyalla, Madras, Tokyo, Brussels, Paris, Turin, Edinburgh, Greenwich, Dunsink; from the Smithsonian Institution; from Miss Brown; Miss Brooke; Messrs. Peek, Roberts, Lockyer, Duner, Huggins, Gore, Chandler, Sawyer, Keeler, Plassmann, Maunder, Oppenheim. To all of whom I beg to tender my sincere thanks.

T. E. ESPIN.

Tow Law,
Darlington, January 1891.