

## ROYAL GREENWICH OBSERVATORY

REPORT FOR 1956-57

THE annual report of the Astronomer Royal for the period April 1, 1956-March 31, 1957\*, includes Greenwich and Abinger, Herstmonceux, and Hartland in the section on "Grounds and Buildings". The grounds and buildings at Greenwich and Abinger have not been completely vacated, and under the section devoted to Herstmonceux it is announced that the equatorial group has not yet been handed over to the Royal Greenwich Observatory, but parts of the telescopes have been installed in certain domes. The aluminizing plant, set up in the equatorial group, has been used satisfactorily. The West Block has not been handed over to the Royal Greenwich Observatory, but by special arrangement quartz clocks have been installed. On October 5, 1956, the buildings of the Royal Greenwich Observatory at Hartland were officially handed over.

The Cooke transit circle has been brought into regular use: an electronic automatic punching chronograph has been made and is ready for installation in the transit circle pavilion. The Yapp 36-in. reflector was dismounted and brought from Greenwich to Herstmonceux, and the polar axis has been erected on site, the remainder of the telescope being in store at Herstmonceux. The mirror, which was refigured and aluminized by Sir Howard Grubb, Parsons and Co., is stored at Herstmonceux. The 30-in. reflector, which was formerly mounted on the axis of the 26-in. refractor, has been refigured by Messrs. Cox, Hargreaves and Thomson and afterwards aluminized at Herstmonceux, and has been erected in Dome A in the equatorial group. A new polar axis and fork were made for it by the same firm, and it is now ready for test. The Isaac Roberts reflector, acquired on loan from the Science Museum, has been set up in Dome C, and its erection is practically complete. The astrographic refractor, 26-in. refractor and the 28-in. refractor have been dismantled and are in store at Herstmonceux.

In the section on astronomical observations, reference is made to the Cooke reversible transit circle, with which 886 transits have been observed since November 28, and the reductions are complete to February 20. A total of 333 stellar plates, containing the images of four or more stars, together with the associated chronograph plates, were obtained with the photographic zenith tube. All these plates have been measured and the data from the stellar plates have been punched on to Hollerith cards. Photographs of the Sun in white light with the photoheliograph, and in H $\alpha$  light with the birefringent filter, were taken throughout the year. Solar activity continued to rise steeply until November 1956, when the Zurich sunspot number for the month was as high as that for any month of the previous sunspot cycles. During the year, 118 solar flares were observed at Herstmonceux, which was a little more than in any previous similar period. Ionospheric recordings (atmospherics) showed frequent solar flare sudden

enhancements. Ionospheric fade-out effects were shown directly from a Paris transmitter by means of a monitor of signal strength, and the information thus given differed somewhat from that provided by the sudden enhancement record.

The Astrometry Department was transferred to Herstmonceux at the end of May and in the short interval before that five plates of the minor planet Vesta and twelve of other minor planets were obtained. Measurement and reduction of these and earlier plates have continued. Searching tests have been made on plates taken with the 17/24-in. Cambridge Schmidt telescope with the object of determining their suitability for astronomy, and as a result of these it appears that straight Schmidt optics, combined with a suitable mechanical design, might well yield a telescope capable of astrometric use.

Among other branches reference may be made to the Cosmic Ray Department, the equipment for which has been largely completed, and the Department is in full operation. The Electronics Laboratory is now at Herstmonceux, and the department has been augmented by the electronics staff of the Time Department at Abinger, Greenwich and Herstmonceux. At Abinger Magnetic Observatory routine work has been carried on by a junior member, assisted occasionally by senior members of the staff from Herstmonceux, following the retirement of the officer-in-charge and the transfer of two of the staff of the magnetic staff to Hartland. In addition to the routine publications of H.M. Nautical Almanac Office, there has been published a new edition of "Interpolation and Allied Tables", the general scope of which is similar to the original edition of 1936, but it has been greatly expanded in content, and in three months 2,000 copies were sold—an indication of the needs that it fills. The Office still continues its work for the Hydrographic Department, that is, the calculation of the data required for the plotting on charts of the Decca navigational lattices. The astrograph, which is designed to simplify astronomical navigation in the air by the projection of precalculated star curves, is being brought back into service, and the Office has calculated new curves for a conventional astrograph and also for an experimental modified model of its own design. As mentioned in the previous year's report, the Office has been investigating the accuracy of astronomical observation at sea, and the overall probable error of a position line turns out to be about 0.8', but the distribution of error is far from Gaussian, with a preponderance of large values. The most significant feature about the observations is their poor quality; the proportion of 'blunders' is high and the observations from nearly 10 per cent of the observers could not be used.

At the end of the Report there is a short note on the Isaac Newton telescope: so much progress has been made by the Executive Committee towards the production of a design for the telescope that a specification was approved by this Committee and submitted to a firm of instrument makers. Financial approval for placing a specific contract is now being sought.

\* Report of the Astronomer Royal to the Board of Visitors of the Royal Greenwich Observatory. Pp. 12. (Herstmonceux: Royal Greenwich Observatory, 1957.)