

with the lack of staff to meet the full requirements of its research programme. The prospects for augmentation in the near future, says the report, are not bright because of the shortage of suitably qualified research workers and also the limitations on recruitment in the Department of Scientific and Industrial Research as a whole; on this latter point, however, it is to be hoped that the more recent alleviation of financial stringency in the Department will ease this problem of recruitment, and it will be interesting to see what future reports will have to say on this matter.

COMMONWEALTH OBSERVATORY, CANBERRA

REPORT FOR 1952

IN the report by the Commonwealth Astronomer of the work of the Commonwealth Observatory for 1952*, reference is made to a supplement to the previous annual report in which a detailed account was given of the bush-fire which burnt out the wing of the main building containing the workshop, - as well as causing other damage. The present report indicates that this has been responsible for the suspension of some of the work, though fortunately in one case it was only temporary—an interruption of twenty-four hours was caused to the time signals until electric power was restored. The quartz oscillators and phonic motors were removed to a place of safety and, three days after the fire, signals (for which pendulum clocks had been used) were resumed from the quartz clocks. The zenith telescope was also damaged, but at the time of writing the report the bubble of the striding level had been replaced though observations were still suspended because of other damage which had not been made good. Owing to the staff position, routine solar observations have been discontinued; the Hale spectrohelioscope is on loan to the Division of Radiophysics, Sydney, of the Commonwealth Scientific and Industrial Research Organization, and the solar noise recorder has been returned to that Organization. Work on astrophysical investigations is dealt with under eight headings, such as monochromatic magnitudes, standard regions, cluster photometry, variable stars, extension of the Large Magellanic Cloud, etc. In this last case a photoelectric survey of the sky in the vicinity of the Large Magellanic Cloud has been commenced with the object of determining the extension of this object in the direction of the Galaxy.

The mounting for the 74-in. reflector arrived at Mt. Stromlo early in April, and the foundations which were commenced in August have been laid and piers erected; arrangements are in hand for the erection of the steel building which arrived in December, and the primary mirror, after completion and a test by the National Physical Laboratory, England, has been accepted. The axes of the 50-in. reflector are in position, with the plywood dome covering the instrument, and further progress with the erection of the instrument will now be possible. A Grubb 20-in. equatorially mounted reflector was purchased from the estate of the late Mr. J. H. Catts and

removed from Sydney in April. The primary mirror was refigured and aluminized, and a new secondary Cassegrain mirror in 'Pyrex' was made and installed. An *EMI* photo-multiplier has been mounted on the telescope and a Brown recording potentiometer from the Yale-Columbia Southern Station has been lent, as a result of which a very useful photoelectric installation is now available.

It is satisfactory to know that the replacement of the fire-damaged machine tools has been practically completed, and since July the machines have been temporarily installed in the annexe to the 50-in. reflector dome. In the optical shop the grinding machine which was originally designed for the Great Melbourne Telescope was used to refigure the 20-in. reflector mirror, and a new Cassegrain secondary was made for the telescope. These and some smaller mirrors were aluminized.

The dismantled 26-in. Yale-Columbia refractor arrived at Mt. Stromlo from Johannesburg in August and in temporary storage awaits the completion of the building and dome; the foundations of the building, which were commenced in August, together with the piers, floor and a large part of the adjoining office, have now been completed.

Under the title of "Ionospheric Prediction Service" are included three sections. The first deals with publications, the regular issue of which has been maintained, as well as a special issue containing further data from Macquarie Island, now ready for distribution. Second is the account of stations, in which is recorded the progress at Hobart, Canberra and Townsville, where, although the recorder was brought into satisfactory operation, the site proved unsuitable and a more satisfactory one has been leased on which work is in progress to erect buildings. The Division of Radiophysics will also establish equipment on this site for ionospheric investigations. Third are investigations: at Hobart studies on the phenomenon of triple splitting are being carried out, and at Mt. Stromlo methods for predicting disturbances are receiving attention.

It is satisfactory to know that three new brick and six prefabricated residences have been completed at Mt. Stromlo during the year, all of them occupied, and that the Observatory buildings have been redecorated and minor portions of the fire-damaged structure repaired. Six publications were issued during the year, dealing with various aspects of the work at the Observatory.

ATTEMPTED EXPERIMENTAL PRODUCTION OF IDENTICAL TWINS IN RABBITS

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MOST of the work on the artificial production of identical twins has been done on invertebrate or frog eggs. Mechanical means were used, particularly the division of the frog egg with a hair. As a result of these trials, double monsters were mostly produced. With mammals, mechanical means were tried on the rat egg without success by Nicholas and Hall¹. The main difficulty found by these authors

* Commonwealth Observatory, Canberra. Report of the Commonwealth Astronomer for the Year 1952. Pp. 5. (Canberra: Commonwealth Government Printer, 1952.)