

INTRODUCTION.

THE Observatory is situated a short distance within the eastern boundary of Devonshire, and midway between the towns of Lyme Regis and Seaton.

Being near the edge of the Cliff, and at an elevation of 524 feet above mean sea level, an uninterrupted horizon to the southward over the splendid bay between the Start Point and Portland Bill is obtained, and no better position could be found for astronomical observations. The situation is however much exposed, and as the building encounters the full force of the south and south-westerly gales which sweep the channel, it was necessary that it should be of a substantial character, a condition which is met by a construction of teak timber framing, filled in with cement concrete between the timbers, and resting on a base of stone with flint facing. The appearance of the building from the south is shown in the accompanying illustration, from a photograph taken October 12th, 1885.

The entrance is on the north side and opens into a convenient apartment on the west of the Dome, used as a Computing Room.

Beneath the Equatorial Dome is a circular chamber with no direct window light, and this forms the Photographic and Chemical Laboratory.

The Transit Room is to the east of the Dome, and is provided with the usual slit in the roof and opening on the south side, so that the meridian passage of all objects may be observed from the southern horizon, through the zenith, and to a considerable distance below the North Pole. The north and south shutters (the latter of which is shown open in the illustration) are worked by an arrangement of counterpoised levers, so adjusted that but little force is required to open and close them; they are found in practice to be perfectly water tight. The roof of both Transit and Computing Rooms are covered with lead.

A flight of steps from the Chemical Laboratory leads up to the Equatorial Room, a circular apartment, 16 feet in diameter, covered by a Dome constructed of sheet copper on iron ribs, furnished with a ring of rackwork, and supported on 20 small grooved iron wheels, so that by a simple set of gearing, the Dome, though weighing nearly two tons, revolves with the utmost ease. A shutter, 1 foot 10 inches wide, opens from the horizon to a little beyond the zenith, and thus affords an uninterrupted view of any portion of the heavens. When the Dome was erected in the summer of 1884, I had reluctantly decided to paint it white on the outside, as a preventative of the intense heat which I feared would be felt under it during the summer; but in this I have been agreeably disappointed, as I find that on the hottest day the temperature of the interior never rises to any inconvenient extent. This is mainly due to the fact that the Dome is a few inches larger in diameter than the circular wall on which it rests, and so allows of a clear space of about two inches all round for free ventilation, it need hardly be said that this close equality of temperature greatly conduces to good telescopic definition. The copper plates are continued eight inches below the rail on which the Dome revolves, so as to prevent the insplashing of rain during heavy gales, and the experience of 18 months has completely proved its efficiency.

The Transit Instrument is by Troughton & Simms, and carries a telescope of two inches aperture and two feet focal length, the optical power suffices to take the passage of the brighter stars within one hour of noon, and is therefore ample for all rating purposes. There are two direct vision and one diagonal eyepiece, with shades for Solar Transits, the usual vertical and horizontal adjustments, and a very sensitive striding level for the pivots.