

object-glasses of 15 inches in diameter, and a focal length of 22·5 feet. The heliometer at the Königsberg Observatory, which continued for a long time to be the largest in existence, has an aperture of 6·4 inches in diameter. This instrument has been rendered celebrated by the memorable labors of Bessel. The well-illuminated and short dyalitic refractors, which were first executed by Plösl in Vienna, and the advantages of which were almost simultaneously recognized by Rogers in England, are of sufficient merit to warrant their construction on a large scale.

During this period, to the efforts of which I have referred, because they exercised so essential an influence on the extension of cosmical views, the improvements made in instruments of measurement (zenith sectors, meridian circles, and micrometers) were as marked in respect to mechanics as they were to optics and to the measurement of time. Among the many names distinguished in modern times in relation to instruments of measurement, we will here only mention those of Ramsden, Troughton, Fortin, Reichenbach, Gambey, Ertel, Steinheil, Repsold, Pistor, and Oertling; in relation to chronometers and astronomical pendulum clocks, we may instance Mudge, Arnold, Emery, Earnshaw, Breguet, Jürgensen, Kessels, Winnerl, and Tiede; while the noble labors of William and John Herschel, South, Struve, Bessel, and Dawes, in relation to the distances and periodic motions of the double stars, specially manifest the simultaneous perfection acquired in exact vision and measurement. Struve's classification of the double stars gives about 100 for the number whose distance from one another is below 1'', and 336 for those between 1'' and 2''; the measurement in every case being several times repeated.*

During the last few years, two men, unconnected with any industrial profession—the Earl of Rosse, at Parson's Town (about fifty miles west of Dublin), and Mr. Lassell, at Starfield, near Liverpool, have, with the most unbounded liberality, inspired with a noble enthusiasm for the cause of science, constructed under their own immediate superintendence two reflectors, which have raised the hopes of astronomers to the highest degree.† Lassell's telescope, which has

Lerebours have also constructed object-glasses of more than 13·3 inches in diameter, and nearly 25 feet focal length.

* Struve, *Stellarum duplicium et multiplicium Mensuræ Micrometricæ*, p. 2, 41.

† Mr. Airy has recently given a comparative description of the methods of constructing these two telescopes, including an account of the