

texture is favorable to close and accurate readings of the angles by lamp-light at night. The limb, or circular arc, is divided to read, by aid of the vernier, to ten seconds. A strong magnifying lens enables the observer, by an estimated subdivision, to read the angles perhaps to the nearest five seconds of the arc of the circle.

2. An artificial horizon of quicksilver, of the usual portable size and form. The quicksilver is carefully distilled by a practical chemist to expel from it, as far as possible, all foreign opaque, and readily oxydising substances. This renders it the most perfect of all mirrors, and, while its surface preserves always, when at rest, a true level, it gives a reflected image of the star observed on, sensibly as bright as the star when viewed in the heavens by direct vision. About one gill of quicksilver is used, and is carried in a bottle made of box-wood. When used it is poured into a Mahogany or Bay-wood cup five inches long and three inches wide, interior dimensions, and one-third of an inch deep. To prevent the quicksilver from being ruffled by any slight motion of the air, the cup is covered by a glass roof held in a light iron frame, the surfaces of the glass being carefully rendered parallel by means of the requisite machinery where it is prepared.*

3. A sidereal chronometer (No. 2,557) made by Parkinson & Frodsham, of London, beats half seconds.

4. An eight-day mean solar chronometer (No. 141) by I. Lukens, of Philadelphia; constructed while he was on a visit to London, about the year 1830 or 1831. It is one of the earliest chronometers I know of made by an American. It is now an excellent time-keeper. It also beats half seconds.

The time is computed from observed double altitudes of stars, selected in pairs of as nearly the same north-polar distance as was practicable under the circumstances attending

*I have been thus particular in this description in order to answer many queries that have been put to me by young gentlemen in the West, who are desirous of entering this field of practical astronomy with portable instruments, and who have not had opportunities of seeing the apparatus.