

WILLIAM WATSON'S SIMPLE INSTRUMENT FOR FINDING A MERIDIAN LINE 1841

During a visit to London in 1840, William Watson contrived the idea of a new kind of instrument for finding a meridian line, for making and fixing sun-dials.

The following article describing his idea was published in the Mechanics Magazine, February 1841.

Two tubes a b, c d, are to be fixed fast on the moveable part Q, so that one of them shall point to the pole star, Alrucabbah, while the other points to the fixed star, Capella.

The line between the two joints or rings e f, on which the moveable part turns, is to make an angle with the horizontal board S, at the bottom, equal to the latitude of the place, and then (when the instrument is set right) this line will be parallel to the axis of the earth, and the pole star tube will be nearly parallel to it, being only about a degree and half from it.

The other tube, pointing to Capella, makes an angle of about 45 degrees from that pointing to the pole star. Then, by setting the instrument on a level plane, and turning it about until the two stars can be seen through the two tubes, the edges of the square horizontal board at the bottom will point exactly to the east, west, north and south.

No matter what o'clock it is when the observation is taken, nor what day of the month it is, nor what time of the year; any time will do when the two stars are visible. And when it stands upon the level plane the two stars cannot be seen through the two tubes, but only when it is set right in the meridian.

The parallel lines on the bottom board being meridians, any of them can easily be marked upon the level plane on which it stands.

And this two-tubed instrument may be used with equal accuracy in a different way, for when the two tubes point to the two stars mentioned, the bottom board will be raised either to the north or south side, according to the difference of latitude, without the observer being at the trouble of making any alteration or preparation for the difference of latitude.

Any other two fixed stars would do for this purpose if they were at a considerable angle from each other, but many of them are not visible every night in the year. Perhaps the star Vega instead of Capella, would suit better for this purpose, as it is nearer to the equator, and nearer in the plane with the Pole Star and the Pole, and it is visible some part of every night in the year when the sky is clear. But Capella and the Pole Star never set in England, therefore they are visible at night, and every night in the year when the sky is clear.

Malcolm Young