XV. Description of a new-invented astronomical instrument, for placing globes in a proper situation, by means of the Sun, without the help of a magnetic compass, or other instrument

Mr. B.M. Forster

To cite this article: Mr. B.M. Forster (1802) XV. Description of a new-invented astronomical instrument, for placing globes in a proper situation, by means of the Sun, without the help of a magnetic compass, or other instrument , Philosophical Magazine Series 1, 12:45, 83-84, DOI: [10.1080/14786440208676028](https://doi.org/10.1080/14786440208676028)

To link to this article: <http://dx.doi.org/10.1080/14786440208676028>

Published online: 18 May 2009.

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Piazzi would be made by some diligent astronomer; and the opinion has been lately revived by Mr. Capel Lofft, a gentleman well known for his attachment both to the sciences and the muses. In the New London Review for March 1800, this gentleman, in a critique on the Athenian Letters, ventured to offer some conjectures respecting an intermediate planet between Mars and Jupiter, the coincidence of which with the new discovery is very remarkable. He supposed that the distance of the intermediate planet from the Sun would be to that of Mars, either as 33 to 15, or as 20 to 15, the midway between which corresponds nearly with the fact. With respect to its diameter, he conceived it might be to that of Mars, as that of Mars to the diameter of the earth; and then being not much more than half the diameter of Mars, and at five times the perigeon distance, it would be seen from the Earth under an angle of $2\frac{1}{2}''$ or $3''$, while Georgium Sidus would appear under an angle of $4''$. These lucky conjectures were drawn from a certain kind of *Pythagorean harmony*, and are ingeniously defended in the Review just mentioned."

XV. *Description of a new-invented Astronomical Instrument, for placing Globes in a proper Situation, by means of the Sun, without the Help of a Magnetic Compass, or other Instrument. By Mr. B. M. FORSTER *.*

IT consists of a brass circle, C, C, (Plate II. fig. 2 and 3.) made to fit the surface of a twelve-inch globe. Across this circle is a brass bar, B, B, arched on the under part, to fit the curve of the globe, and flat at the top. The sides of this bar are graduated, answering to ten degrees of the ecliptic; and the under part is chamfered so, that the edge may be very narrow which lies over the ecliptic, when in use. On the flat top of the bar is a small hole, with a metal pin S, serving as a *style* to cast a shadow. The part which receives the shadow is painted a dead-white, to prevent the dazzling which the brass alone would have occasioned.

This little instrument, which may be called a solar style, was made under my direction by Mr. Blunt of Cornhill.

Method of using the Instrument.

Find the sun's place in the ecliptic, by an almanac, (or on the wooden horizon of the globe, if marked there,) then place the instrument in such a manner on the surface of the globe, that the pin or *style* be exactly over that place on the ecliptic. Having done this, turn the globe into such a

* Communicated by the author.

Fig. 2.

Fig. 1.

Fig. 3.

Lowry sculp.

situation that the *style* shall cast no shadow : when this is the case the globe will be properly placed ; or, as it is usually called, rectified for the time of day.

This instrument may also be used for taking distances of places or stars, on different parts of the globe, which are not more than ten degrees asunder.

XVI. *A few Particulars respecting Mr. BOAZ's Patent Telegraph*.*

THIS Telegraph exhibits the alphabetic or other characters, or signals, by means of lamps rendered visible and invisible by a mechanism simple in its construction and immediate in its effects, as also by boards or other opaque bodies, which may, in like manner, be rendered visible or invisible at pleasure, by alternately presenting their fronts or their edges to the eye. Or by lamps and boards so combined together, that both or either may be used : but perhaps the modes easiest in fitting up and application are the following, viz. ;

Twenty-five lamps are placed in a frame at equal distances from each other, as represented by the white dots in fig. 1, No. 1, (plate III) each having a moveable cover, or blind, fitted to it, in such a manner that, when they fall down, (which they do by their own weight) the lamps, or rather the flames of the lamps, are intercepted and rendered invisible, so presenting a mere blank to the eye placed in front of the frame, as in fig. 2, No. 1.

Another frame is provided having grooves cut in it : and for each letter of the alphabet or other sign wished to be exhibited, an oblong piece of wood is also provided, made so as to slide backward and forward in these grooves, having an alphabetical letter or other sign, conspicuously marked on the outer end of it. Any one of these pieces of wood, by being pushed in or drawn out, pulls *all at once* from before the lamps, or lets down (by means of ropes or wires) as many lamp-covers or blinds as are necessary to exhibit that particular letter or sign marked on that particular piece of wood, so pushed in or drawn out. The letters of the alphabet so exhibited, are represented by figures 3 to 28, No. 1.

The same thing, however, may be accomplished by means of nine lamps only. Fig. 1, No. 2, represents the nine lamps, rendered visible by having their covers or blinds removed as mentioned above. Fig. 2, No. 2, represents the whole covered. Figs. 3 to 28, No. 2, represent the whole

* Communicated by Mr. Boaz.