*Euphrosyne.*

| Mean Solar Time of Observation. | | Apparent R.A. | Apparent N.P.D. |
|---|---|---|---|
| | h m s | h m s | ° ′ ″ |
| 1856, Jan. 30 | 14 37 5·3 | 11 15 9·81 | 42 59 44·45 |
| Feb. 14 | 13 21 47·1 | 10 58 47·59 | 41 56 17·04 |

*Iris.*

| Mean Solar Time of Observation. | | Apparent R.A. | Apparent N.P.D. |
|---|---|---|---|
| | h m s | h m s | ° ′ ″ |
| 1856, Jan. 11 | 10 6 59·0 | 5 29 24·52 | 69 37 32·40 |
| 15 | 9 49 25·3 | 5 27 34·13 | 69 49 26·05 |
| 25 | 9 8 41·9 | 5 26 9·61 | 70 10 4·46 |
| 28 | 8 56 30·6 | 5 25 46·00 | 70 17 20·98 |
| 29 | 8 52 41·9 | 5 25 53·29 | 70 18 47·72 |
| 30 | 8 48 55·2 | 5 26 2·52 | 70 20 15·99 |
| Feb. 16 | 7 49 54·9 | 5 33 53·90 | 70 32 52·15 |

*Polyhymnia.*

| Mean Solar Time of Observation. | | Apparent R.A. | Apparent N.P.D. |
|---|---|---|---|
| | h m s | h m s | ° ′ ″ |
| 1856, Jan. 15 | 13 23 5·2 | 9 1 49·19 | 70 29 26·92 |
| Feb. 12 | 11 8 3·0 | 8 36 48 41 | .......... |

*Egeria.*

| Mean Solar Time of Observation. | | Apparent R.A. | Apparent N.P.D. |
|---|---|---|---|
| | h m s | h m s | ° ′ ″ |
| 1856, Jan. 30 | 14 34 35·7 | 11 12 39·79 | 56 11 49·65 |
| Feb. 14 | 13 23 40·5 | 11 0 41·29 | 54 30 23·23 |

The object observed on Jan. 30 is probably not the planet.

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## *Description of an Observatory erected by Frederick Brodie, F.R.A.S., at Eastbourne, Sussex.*

The following short description of what may be termed a *portable* observatory may be useful to those amateur astronomers who may not be permanently resident at any one place for many years together, or who may possibly change their residence several times during the course of their lives. In proof of the feasibility of this plan, the author first erected this observatory in Somersetshire, and has since removed it into Sussex, some 160 miles distant. The time occupied in taking the whole of it to pieces, packing up the parts in sequences of numbers, and placing it on a railway, was from *four* to *five days*. The re-erection of the building will take at least ten days or a fortnight.

*The building* is entirely of wood, and rests on about 20 small brick pillars, which rise to about 8 or 10 inches above the ground, so as to keep the building free from damp. Upon these small pillars rests the *bottom cill*, 5 in. by 4 in., from which rise uprights, $2\frac{1}{2}$ in. by $3\frac{1}{2}$ in. at about intervals of 2 feet apart. Those uprights which support the dome are 4 in. by 4 in., and are placed only at the angles of the dome-room. The *top cill* is 4 in. by 3 in., upon which rests a flat roof of $\frac{3}{4}$-in. boards, having a small rise of 3 in. in the centre, to throw off the wet, and covered with canvass well painted with paint and varnish. The top cill of the dome-room is 5 in. by 4 in., upon which is placed a cast-iron ring in segments, slightly grooved for the balls of the dome to run upon. This top cill is circular, 15 feet diameter inside. The dome-room is a figure of 12 sides, two of the sides forming a connexion with the transit-room. It has also two windows.

The dimensions of the building are as follows:—

| | ft. | in. |
|---|---|---|
| Diameter of dome at bottom ... ... | 15 | 0 |
| Ditto ditto at top ... ... | 6 | 6 |
| Height of dome ... ... ... ... | 6 | 6 |
| From floor to top of dome ... ... | 14 | 6 |
| Length of transit-room ... ... ... | 20 | 6 |
| Width of ditto ... ... ... ... | 8 | 0 |
| Height of ditto from floor ... ... | 7 | 3 |

A portion of the transit-room, about 7 feet in length, is partitioned off, forming an entrance lobby, &c. The floor of the transit-room is about 3 in. above the bottom cill, and that of the dome-room about 4 in. above the transit-room.

The whole building is weatherboarded with 1-in. boards, all screwed on; the floors also are screwed down; nothing is nailed except fixtures, which do not require taking to pieces. The uprights and cills are morticed together and fixed with wooden pegs, so as to admit of being driven out when required. The weatherboarding has a lap of 1 in., upon which lap is tacked a strip of list, which keeps the sides weather-tight when screwed up. The floors and roof of transit-room are tongued with $\frac{3}{4}$-in. iron hooping.

The transit-shutters are 15 in. wide in clear opening. The top shutter is opened by a rope and pulley. The north shutter has a lens fixed in it of about 50 feet focus, at which distance a *meridian mark* is placed. This mark consists of a brass pin, $\frac{3}{4}$ in.

diameter, one end of which plays into two parts, for convenience of imbedding in brickwork; upon the pin fits a disc of brass $2\frac{1}{2}$ in. diameter, and turning freely upon the pin, having a small wedge, to fix it, running through its centre. On one side of this disc is a small disc of iridium metal, having a black dot in its centre, in the centre of which, again, is a fine point of the iridium metal, having the effect of a white speck on a black ground. This metal is preferable to silver, it having no tendency to oxidise in the open air.

The lens which is fixed in the shutter of the transit, having a focus of 50 feet, at which distance the meridian-mark is placed, is only useful for collimating the transit-wires, or other temporary purposes, while adjusting the instrument; because the mere fact of its being attached to a wooden cell, which is ever liable to warp, and thereby slightly change the position of the lens, renders it totally unfit for a permanent reference to the meridian mark, since any such alteration in the position of the lens will disturb the coincidence of the transit-wires and meridian-mark, making the appearance of an alteration in position of the meridian-mark itself, or the transit-instrument.

The *transit-instrument* is a 3-in. glass, by Merz, of Munich, 45 in. focal length, and rests on a cast-iron stand, fixed upon brickwork, having one circle on its axis, 10 in. diameter, divided to 15 minutes, and reading to 15 seconds. It has a sliding eye-piece, worked by a double-threaded screw, with a diagonal eye-piece for observing stars in zenith.

The *clock* is fixed to a post formed of two 3-in. planks, bolted together in the form of a T, and is fixed in rubble-work sunk in the ground. A Hardy's noddy on the top shows no tremor at any time.

The *dome* is in the form of a 12-sided cone without the apex. It is 15 feet diameter at the bottom, tapering to 6 ft. 6 in. at the top, having a height of 6 ft. 6 in. It has a sliding-shutter on either side, the clear opening of which is 21 in. These shutters are fitted with small brass runners, and work in grooves lined with thick hoop-iron, causing the shutter to slide freely. The top shutter on the dome is hung on hinges, and opens with a rope and pulley. The flat top of dome is covered with canvass well painted. The bottom cill is made of segments of wood 5 in. by 2 in. in two layers, put together with marine glue, and bolted with 4-in. coach-screws, the segments breaking joint with each other all round. There are four places where the joint is left unglued for the purpose of taking it to pieces. On the under-side of this cill are screwed two rings of bar-iron, 1 in. by $\frac{1}{2}$ in. thick. These rings have an interval of 2 in. between them, so as to catch the cast-iron balls upon which the dome turns, on the right-angled corner of the bar-iron. By this arrangement a groove is formed for the balls, which has the effect of keeping the dome quite steady; and so easily is it turned, that even a single finger is sufficient for that purpose. An iron bar forms a handle by which the dome is turned. Although so light and so easily moved, the form of the dome, and the manner in which it is hung, are such, that there is hardly any motion perceptible during the heavy south-west gales so prevalent on this coast. The top cill of the dome is a 12-sided figure made of wood-scantling, $2\frac{1}{2}$ in. by $3\frac{1}{2}$ in.; to this the rafters are screwed. The rafters are 2 in. by 3 in. An elm ring of board, $\frac{1}{2}$ in. thick and 6 in. broad, is screwed on outside the lower cill of dome, to give it stiffness, and to keep out rain and wind.

The equatorial telescope is made by Merz, of Munich; the object-glass is 6·4 in. in diameter, having a focal length of 8 ft. 6 in. The tube is made of wood, and is very light. The mounting is of peculiar construction, made in England, from drawings and designs of the author. It is a stand of cast-iron, in three pieces, each bolted firmly together, having lead between the joints, to lessen any liability to tremor. The bottom part is entirely below the floor of the observatory, and is a triangular plate, from which rises the upper part of the stand to a height of 6 feet. The northern side of the stand tapers from 3 ft. 6 in. at the bottom, to a width of 6 in. at the top. The adjusting screws for latitude and azimuth are attached to the bottom part of the frame. The polar axis is also bolted to the stand at the upper part, having two taper bearings bushed with brass; diameter of the bottom one, $3\frac{1}{4}$ in.; top one, $2\frac{1}{2}$ in. A cast-iron cradle turns on this axis, the bearings of which are also bushed with brass. To this is attached the hour-circle, while the top of this cradle carries the declination axis. On the top of the polar axis, and inside, at the top of the cradle, are two corresponding discs of steel, upon which the whole weight of the telescope cradle and declination axis rests; so that the cradle turns with a very small amount of friction. There is an adjusting screw, which acts on the discs, so as to lift the cradle from the taper bearings just enough to allow it to turn freely without lateral motion. The declination axis is made of brass, and is hollow; the end carrying the cradle of telescope has a bearing of $2\frac{1}{2}$ in. diameter; the other end has a bearing 2 in. diameter, and carries the circle and counterbalance. The declination circle is 18 in. diameter, and is divided on silver to $10''$ reading to $10''$ by the verniers. The hour-circle is 15 in. diameter, divided on silver to $2'$ reading to $4''$ by vernier. On the polar axis is fixed the clockwork and tangent screw. There is a shifting counterbalance fixed on the telescope for using with the position micrometer. The weight of the stand is about three-quarters of a ton, and the weight of the moving parts, together with a light tube, renders the telescope remarkably steady, and perfectly free from oscillation of any kind. The bottom part of the stand rests on three brick piers laid in cement.

To any gentleman who might wish for further information, the author will be happy to afford it.*

*February* 8, 1856.

* This description was accompanied with two photographs, which were exhibited at the meeting of the Society.—Ed.