

XIV. *A Letter from the Rev<sup>d</sup> Ebenezar Latham, V. D. M. and M. D. to C. Mortimer, M. D. S. R. S. concerning the true Delineation of the Afterisms in the antient Sphere.*

S I R,

I Was obliged, by the Favour of yours, with Number 447. of the *Transactions*, by which I find we have the Globe of the Heavens already contrived for the Use I intended. I never heard of Mr. *Senex's* Invention, *ib.* N<sup>o</sup> 447. before the Hint yours gave me, and am pleased with the Opportunity I had of producing it to the World. It is many Years since I first thought of this Method, and have often suggested it to some Students. The Dispute that arose about Sir *Isaac Newton's* Chronological Index, communicated by Abbé *Conti*, confirmed my Opinion of the Advantage that would attend it; especially the Admonition our learned Dr. *Halley* gave Father *Souciet*, (“ to inform “ himself in the *Sphæriques*, so as to give us the right “ Ascension of the Stars truly from their given Latitude and Longitude”) made me yet more sensible how necessary something of this kind was, to let common Readers into the Merits of the Controversy. But it was perfectly accidental, that I ever presumed to mention at all to your *Learned Body*, this Alteration in the Construction of the Globes, which I had so often wished might obtain for the Use of several Sciences. You will receive, with this, one Scheme,  
among

among several, which I have projected, that is nearest Mr. *Senex's*, and least defaces the Globe, which I submit to your Judgment, as to the Conveniences that attend it.

## T A B. VI.

Fig. I. A Vertical Section of the Globe.

P. P. *The Poles of the diurnal Motion.*

A. *The Axle of the Globe, which terminates in the Poles of the Ecliptic, and receives the other End of the Brass Arms upon each of its Pivots.*

Æ. *A brass Equator fixed to the brazen Meridian.*

K. K. *A Key, which, on Occasion, being put through a Hole in the Brazen Meridian, is just over the Place where the Poles of the Ecliptic pass, by means of a square Hole in the Head of a Screw, serves to fix that End of the Brass Arm, or give it Liberty to move with Ease: And the Key, being left in when the Screw is slackened, will hinder the Globe from moving on the Poles of its diurnal Motion, till you have adjusted it to your Mind, straitened the Screw again, and taken out the Keys; as may be seen more plainly in,*

Fig. II. Which is nothing but the Windlass Part, or the Arm, Pole, and Part of the strong Axis of the Globe, with the Screw and Key more at large, and separate from one another for the more distinct View.

If I may take the Liberty to add any thing farther on this Head, next to the accurate Observation of the *British Catalogue* in placing the Stars themselves, it should be the Revival of the *antient Figures and Colours*, as far as we can recover them. It is certain the Invention was very antient, if we suppose the Descriptions *Eudoxus* has given us, taken from Observations long before his Time, when the Solstitial Colure passed through the Middle of the *Great Bear*, and the *Crab* through the Neck of *Hydra*, and cut *the Ship* between the Poop and the Mast, &c.—Now I have mentioned *the Ship*, you will indulge a Conjecture, that the Situation of this [just on the Horizon (where they imagined the Sea) in an erect sailing Posture for some Eastern Expedition, and terminating their farthest View to the South], may both give some Light into their *Latitude*, that imposed this Name, and (from that, which must have been the Place of the Pole to answer this Form) *the Era of Time*, wherein it was done; for, in the present Disposition, the Inhabitants of *Greece* could not have a proper View of that Constellation, or be led to form it in the Manner the Antients have done. I shall not here urge all the Difficulties in the old Descriptions, that might have a Solution from this Method; but if an Alteration could be made either in the *Colour* or *Attitude* of the *Figures*, to answer them better, it would add to the Pleasure of reading some Authors, and, together with that new Construction, might afford us such a View of the Heavens, as Mr. *Addison* had of *Italy*, when he made the Tour of it with the Classics in his Hands: And, since I have brought those Writings into the Account, you will  
allow

allow me to cite some Passages, which might receive both *Truth* and *Beauty* from such an Improvement: Where *Homer* says,

Πληιάδας δ' Ἰάδας τε, τό τε δίνος Ὀρίωνος,  
 Ἄρκτον δ', ἣν καὶ ἄμαξαν ἐπικλησιν καλεῖσθαι,  
 Ἡτ' αὐτῶν γέφεται, καὶ τ' Ὀρίωνα δοκεύει,  
 Οἷν δ' ἄμμορος ἐπι λοετρῶν ὠκεανοῖο.

*Iliad*. Σ. 487.

The *Pleiads*, *Hyads*, with the Northern Team,  
 And great *Orion's* more refulgent Beam;  
 To which around the Axle of the Sky,  
 The *Bear* revolving points *his* golden Eye,  
 Still shines exalted on th' ethereal Plain,  
 Nor bathes *his* blazing Forehead in the Main.

*Pope.*

Mr. *Pope*, amidst a small Mistake of the *Sex*, keeps only the Forehead above Water; but the Poet seems to exempt her intirely; and so does *Virgil*, when he makes *Fear* account for the same *Phænomenon*, that *Ovid* (who preserves all the Fable of the Antients) ascribes to *Force*.

*Maximus hic Flexu sinuoso elabitur Anguis  
 Circum, perque duas in morem fluminis Arctos:  
 Arctos Oceani metuentes Equore tingi.*

*Virgil*. *Georg.* Lib. I. 244.

Around our Pole the spiry *Dragon* glides,  
 And like a winding Stream the *Bears* divides,  
 The Less, and Greater, who by Fate's Decree  
 Abhor to dive beneath the † *Southern* Sea.

*Dryden.*

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† Northern.

*Nuper honoratas summo mea Vulnera Cælo  
Videritis Stellas illic, ubi Circulus Axem  
Ultimus extremum Spatioque brevissimus ambit.*

Ovid. Met. Lib. II. 515.

—————New Stars you'll see,  
In this approaching Night's Obscurity,  
With hateful Beams i'th' *Arctic* Circle shine.

He immediately adds,

*At vos si læsæ contemptus tangit Alumna,  
\* Gurgite cæruleo septem prohibete Triones:  
Sideraque in Cælo stupri mercede recepta  
Pellite, ne puro tingatur in Æquore Pellex.*

—527.

Ne'er let those spurious Stars approach the Deep, }  
Nor in the purging Ocean's Bosom sleep, [keep. }  
But their eternal Stain, their whorish Tincture }

And when he describes them as a Team, it is with  
the same Reserve.

*Tum primum Radiis gelidi caluere Triones,  
Et vetito frustra tentârunt Æquore tingi.*

—171.

Then the Sev'n Stars first felt *Apollo's* Ray,  
And wish'd to dip in the forbidden Sea.

All which is a proper Hint for the *Disposition of  
the Globe*, that must correspond to these *Appearances*

\* In the *Ordeal* by Water, it was adjured, not to receive the Guilty;  
in Terms like these.

then,

then, and which can only be obtained by this Method: By the Help of which we may also apprehend the Light these Descriptions give us *into the Age of the Writers*. I may illustrate this from *Hesiod's Account of the Seasons*, of which we have not only a better Idea by this artificial Disposition of the Globe to answer them, but also of *the Time* wherein he lived, when we come to adjust the Heavens to the accurate Instructions he gives us, according to his Latitude at *Ascra*, allowing 50'' *per Annum* for the apparent Motion of the Stars.

Εὖτ' ἂν δ' ἐξήκοντα μῆτροπαὶς ἡελίοιο  
 Χειμέρι' ἐκλεέσῃ Ζεὺς ἡμάλια, δὴ ῥα τότε ἄστ' ἦρ  
 Ἄρκτου⊙ περιπλῶν ἱερὸν ῥοόν Ἀκeanοῖο,  
 Πρῶτον παμφαίνων, ἐπίελλεῖαι ἀκροκνέφαι⊙.  
 Ἡσιόδ. Ἐρῆ. Βιβλ. 6'. 182.

When the glad Sun, approaching with his Rays,  
 Has from the Tropic run out Sixty Days;  
*Arcturus*, rising from his sacred Bed,  
 Is first discover'd in the Ev'ning Shade.

Εὖτ' ἂν δ' Ὀρίων κ' Σείρι⊙ ἐς μέσον ἔλθῃ  
 Οὐρανον, Ἄρκτουρον δ' ἐσίδη ῥοδοδάκτυλ⊙ Ἥως. 227.

But when *Orion*, and the *Dog-Star*, come  
 To the Mid-region of the heav'nly Dome,  
 The Morn, that blushing draws away the Night,  
 Beholds *Arcturus* in the dawning Light.

If we fix the Pole almost in the Mid-way between the Star in the Shoulder of the lesser *Bear*, and another of the *Serpent*, we shall have the Satisfaction to observe all these *Phænomena* answer the Description.

tion. I shall not enter into the Calculation; for I would not anticipate the Pleasure, one, that hath no Notion of the Age of *Hesiod*, must have, when he finds himself able, with so much Ease and Precision, to determine it by these Characters\*.

*Hesiod's* Account of the *Pleiads* is too particular not to demand our Attention, and require an Explanation in the same way †.

Πληιάδων Ἀλλαγενέων ἐπιελλομενάων

Ἄρχεσθ' ἀμπτῆ, ἀρότοις ὃ δυσομενάων.

Ἄι δὴ τοι νύκτας τε καὶ ἡμέρας τεσσαράκοντα

Κεκρύφαλας.

Ἡσιόδ. Ἐρῶ. Βιβλ. ε'. 1.

Be-

\* Since I wrote this, I had the Pleasure to find *Scaliger* concur with me—

*Hesiodus* florebat eo Sæculo, quo *Arcturus* ἀκεόνυχος oriebatur in *Bœotia*, viij. Die Mart'i. Si quid hoc ad Conjecturam facit, saltem apud excellentes Astrologos, qui ex hoc Parapegmate infra septuaginta plus minus Annos Sæculum *Hesiodi* deprehendere possunt. *Animadvers. in Chron. Eusebii*, p. 67. Edit. Lugd. Batav. 1606.—

The following Passage in *Sir Isaac Newton's Chron.* p. 95. hath come to my Hands since the former. “*Hesiod* tells us, that, 60 Days after the Winter Solstice, the Star *Arcturus* rose just at Sun-set; and thence it follows, that *Hesiod* flourished about 100 Years after the Death of *Solomon*, or in the Generation or Age next after the Trojan War, as *Hesiod* himself declares.”

'Tis what we may compute by the present Globe; for, bringing *Arcturus* to the Eastern Horizon, the Sun we shall find in the Ninth Degree of *Aries*. Now it enters  $\vee$  Dec. 11. and 60 Days after, or Feb. 10. it is in  $\times$   $20^{\circ} 30'$ . when allowing for the Northern Latitude of *Arcturus* to make it visible on the Horizon, its Longitude must have been  $\text{III}$   $14^{\circ}$ , &c. whereas its Place now is about  $\text{II}$   $20^{\circ} 27' 12''$ . And the Difference both ways one Sign  $6^{\circ} 18'$ , &c. which makes him to have lived 2614 Years ago.

† *Hæc Signis veteres Agricola, & ex eorum Traditionibus Scriptores rei rusticæ, nec non & Medici, Poetæ, & Historici sunt usi ad Anni Tempestates designandas, &c.* *Greg. Astron.* p. 130.

Begin the Harvest, as the *Pleiads* rise, [Skies;  
And take the Plough, when they withdraw the  
For Forty Days and Nights their glimm'ring Light,  
Obscur'd to us, no longer chears the Sight.

To this I might add *Homer's* Image of the *Dog-Star*, but especially the exact Description in *Hesiod*.

Ἄστ' ὀπωρινῶ ἑναλίγκιον, ὅς τε μάλιχα  
Λαμπρόν παμφαίνησι λελυμένῳ ὠκεανοῖο. Ἰλιάδ. Ε'. 5.

Like the red Star, that fries th'autumnal Skies,  
When fresh he rears his radiant Orb to Sight;  
And, bath'd in Ocean, shoots a keener Light.

— — δὴ γὰρ τότε Σείριον ἄστ' ἦρ  
Βαῖον ὑπὲρ κεφαλῆς κηλίρεφῶν ἀνδρῶτων  
Ἐρχεται ἡμάτιος, πλεῖον ἢ τε νυκλὸς ἔπαυρεῖ.  
Ἡσιόδ. Ἐρῆ. Βιβλ. β'. 35.

For then the *Dog-Star* governs in his Course,  
Walks o'er the Heads of Men, who feel his Force,  
Comes in the Day, but chiefly shares the Night.

How beautifully does the same Writer express the  
Gesture of *Orion*, as he is following the *Pleiads*?

Εὖτ' ἂν Πληιάδες θένος ὄβριμον Ὀρίωνος  
Φεύγασαι, πίπτωσιν ἐς ἠεροειδέα πόντον. 237

The *Pleiads*, flying from the threaten'ng Scourge  
Of strong *Orion*, plunge into the Surge.

Perhaps this may give some Light to a Passage of  
*Virgil*, that hath very much puzzled his Commen-  
tators.



*Taygete simul Os terris ostendit honestum  
 Pleias, & Oceani spretos pede reppulit Amnes:  
 Aut eadem Sidus fugiens, ubi Piscis aquosi  
 Tristior hybernas Cælo descendit in Undas.*

Georg. Lib. 4. 232.

First, when the pleasing *Pleiades* appear,  
 And springing upward spurn the briny Seas:  
 Again when their affrighted Choir surveys  
 The watry *Scorpion* mend his Pace behind,  
 With a black Train of Storms, and Winter-wind,  
 They plunge into the Deep, and safe Protection  
 find. } Dryden.

Some, I know, by this *Sidus* understand the *Southern Fish*, others the *Hydra*, and some the *Sun*; but how Mr. *Dryden* came to insert *Scorpio*, I shall not inquire. Nor shall I trouble you with any Conjectures with regard to the *antient Figures*: It is certain there have been *Variations* in this respect, since *Ptolemy* mentions a Star in the Horn of *Aries*; and it is thought *Hipparchus* reckoned one, that is now in the Line, to the first Foot of *Aries* \*. Whether the Epithet *Ovid* gives *Capella*, does not imply some little Difference, in the Situation of it, from ours, I leave to the Critics.

—Et

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\* Since I wrote this, I find Sir *Isaac Newton*, in this way, recover to their former Places the Stars below, by rectifying the Delineation.

“ In the extreme Fluxure of *Eridanus*, a Star of the Fourth Magnitude, of late referred to the Bosom of *Cetus*.

“ In the Head of *Perseus*, a Star of the Fourth Magnitude.

“ In the Right Hand of *Perseus*, a Star of the Fourth Magnitude.

“ In the Neck of *Hydrus*, a Star of the Fourth Magnitude.

“ In the Left Hand of *Cepheus*, one of the Fifth Magnitude.”

All whose Characters he designs from *Bayer*.

—*Et Oleniæ Sidus pluviale Capelle,  
Taygetenque, Hyadasque Oculis, Arctonque notavi.*  
Met. Lib. III. 594.

—I began to note  
The stormy *Hyades*, the rainy \* *Goat*,  
The bright *Taygite*, and the shining *Bears*,  
With all the Sailors Catalogue of Stars.

I might insist on the Etymology of *Arcturus*, and others; for it appears from the Accounts the Antients themselves give us, there was not always the greatest Uniformity in their Drawings. *Ovid* says of *Bootes*,

————— & te tua Plaustra tenebant.  
Lib. 2. 177.

Nay, and 'tis said, *Bootes*, too, that fain  
Thou would'st have fled, though cumber'd with  
thy Wain. *Addison*.

And he lets us know, that *Scorpio* took up 60°.  
*Est Locus, in geminos ubi Brachia concavat Arcus  
Scorpios; & Cauda, flexisque utrinque Lacertis,  
Porrigit in Spatium Signorum Membra duorum.*

—195.

There is a Place above, where *Scorpio*, bent  
In Tail, and Arms, surrounds a vast Extent;  
In a wide Circuit of the Heav'ns he shines,  
And fills the Space of Two celestial Signs.

This might be one Reason of that Compliment  
which *Virgil* paid *Augustus*, apart from the other,  
which *Scaliger* assigns.—

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\* Elbow'd.

*Anne novum tardis sidus te mensibus addas,  
Qua locus Erigonen inter, Chelasque sequentes  
Panditur? ipse tibi jam Brachia contrahit ardens  
Scorpius, & Cæli justa plus parte reliquit.*

Georg. Lib. I. 32.

Where in the Void of Heav'n a Space is free,  
Betwixt the *Scorpion*, and the *Maid*, for thee:  
The *Scorpion*, ready to receive thy Laws,  
Yields half his Region, and contracts his Claws.

It's true, this Poet knew *Libra* very well; but,  
perhaps, it made no great Figure among the *Asterisms*  
then.

*Libra die somnique pares ubi fecerit horas,  
Et medium Luci, atque Umbris jam dividet Orbem.*

—208.

But when *Astræa's* Balance, hung on high,  
Betwixt the Nights and Days divides the Sky.

*Dryden.*

How *Taurus* was painted at that Time, we learn  
from his Description.

\* *Candidus auratis aperit cum Cornibus Annum  
Taurus, & averso cedens Canis occidit Astro.*

—217.

\* By reason the First Month of the old Luni-solar Year (on account of the intercalary Month) began sometimes a Fortnight after the *Æquinox*. This may, perhaps, account better for the Propriety of *Virgil's* Expression *Aperit Annum*, than any of his Commentators have done.

When with his golden Horns, in full Career,  
 The *Bull* beats down the Barriers of the Year;  
 And *Argos*, and the *Dog*, forsake the Northern  
 Sphere. }

In the last Verse we have, perhaps, no Occasion for *Heinsius's* Correction of *adverso*, if we compare the Diction here with *Ovid's*.

*Per tamen adversi gradieris Cornua Tauri.*

Met. Lib. II. 80.

The *Bull's* opposing Horns obstruct the Way.

The Instructions *Virgil* gives in the same Place, as to Husbandry, are best understood from this new Disposition, and may render us sensible how much earlier these *Phænomena* were then in the Year, to what they are at present\*.

*Ante tibi Eoæ Atlantides abscondantur, &c.*

Georg. Lib. I. 221.

But if your Care to Wheat alone extend,  
 Let *Maia* with her Sisters first descend,  
 And the bright *Gnosian* Diadem downward bend. }

I know we cannot depend upon all the Exactness in a Poet, that might be expected from an Astronomer: But *Virgil* seems to have made it his favourite Study.

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\* *Paulatim Observatio hujus Ortus & Occasus neglecta jacet, nec ab aliis usurpatur, quàm à Poëtis, qui tempora per Circumstantias tan varii Ortus & Occasus tot Syderum (quibus nihil pulchrius) describere, & veluti pingere solent, quamvis plerumque erroneè, quippe qui Calendarii nostri Diem per ejusdem Stellæ Ortum describunt nunc, per quem describebatur tempore Cæsaris, cum tamen tempora discrepent 14 diebus ferè.* Greg. Astron. p. 132.

*Me vero primum dulces ante omnia Musæ,  
Quarum sacra fero ingenti percussus Amore,  
Accipiant; Cœlique Vias, & Sydera monstrant.*

Lib. II. 475.

Would you your Poet's first Petition hear,  
Give me the Ways of wand'ring Stars to know.

*Ovid* appears also perfectly acquainted with the ancient Figures, and the most accurate way of *delineating* them, at the same time that he enlivens them with their *Fictions*.

*Consistuntque Loco, Specie remanente Coronæ,  
Qui medius nixique Genu, anguemque tenentis.*

Met. VIII. 181.

————— The Crown retains  
Its proper Figure, and a Station gains  
Where *Hercules* in bending Posture stands,  
And strives to gripe the *Dragon* in his Hands.

*Vid.* Lib. XIV. 846.

How he came by the Account, it is not material to inquire; but there is *one Line*, wherein he seems to have preserved some ancient Tradition, as to the *Pole*.

*Quæque Polo posita est glaciali proxima Serpens.*

Lib. II. 173.

The folded *Serpent* next the frozen Pole.

And there is Reason to believe one of the Stars of that *Constellation* was the *antient Polar Star*, and might first give Rise to the Denomination; for one in the *Tail of the Dragon*, of the *Third Magnitude*, comes nearest it of any other. About the Time of the *Flood*, it was within 10' of the *Pole*, and might pass

pass for the *Polar Star* a Thousand Years after among those Writers, from whom *Ovid* copied his Expression. However, this is certain, that *another Star* of that Constellation, one of the Fourth Magnitude, was really nearer than any other, when the old *Observations* were made, which literally justifies *Ovid's Account*. I might take notice of his exact Representation of the Disposition of *the Ara*, and *Anguis*, when he makes them the Two Extremes.

————— *Medio tutissimus ibis :*

*Neu te dexterior tortum declinet in Anguem,*

*Neve sinisterior pressam Rota ducat ad Aram.*

*Inter utrumque tene.*————— ib. 137.

The middle Way is best.

Nor where in radiant Folds the *Serpent* twines

Direct your Course, nor where the Altar shines.

Shun both Extremes.

But the Inspection of the Globe, when it is fixed in a proper Position, will convey the best Idea of all these Appearances; for we derive this Advantage from the new Construction of it, that it will enable us to place the several *Phænomena before every Eye*; by which means those who have the least Acquaintance with these Studies, must be greatly surpris'd and pleas'd to observe the antient Accounts minutely verified. It is a sort of living over again the former Ages, *allowing*  $1^{\circ}. 23'. 30''$ . for every hundred Years, according to *Ricciolus* and *Flamsted*, which is a sort of Mean between the other Computations.

I shall not now suggest some other Purposes, that might be served by this Method. It is sufficient to recommend the Invention, that it throws so much

Light on the common Classics, to which I have confined this Examination, and which must be my Excuse for the Citations. I am, with great Respect,

*The ROYAL SOCIETY'S*  
*and your most obedient*  
*humble Servant,*

E. Latham.

XV. *Lumen Australe Romæ observatum die*  
 27 Jan. An. 1740. a Didaco de Revillas,  
 Abbate Hieronym. P. Math. Prof. &  
 R. S. S.

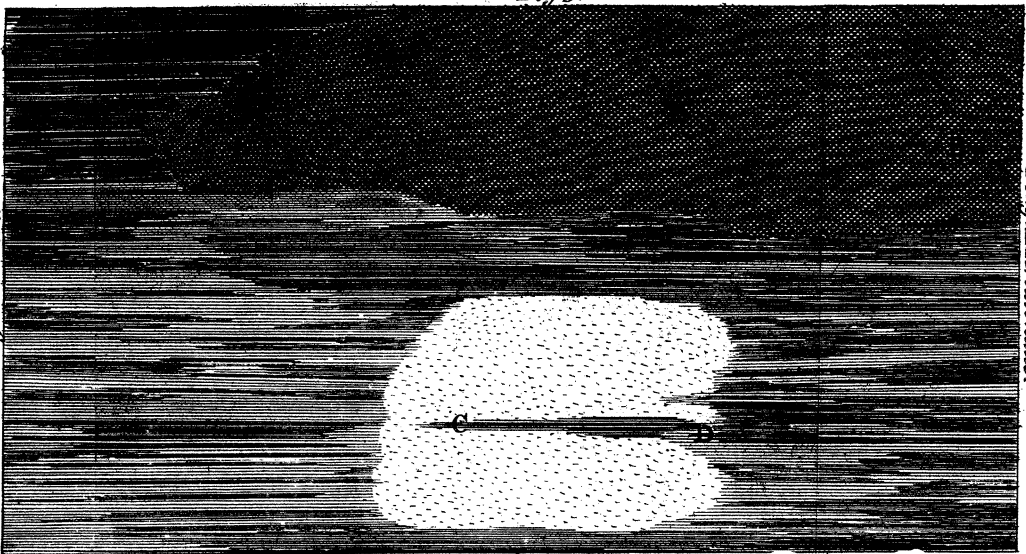
**C**OELO undique nubilo, notoque vehementer flante, hora post Meridiem 6<sup>a</sup>. rubescens lumen inter gradus 45 & 55 amplitudinis ortivæ australis apparebat. Maxima ejus supra horizontem latitudo gradus circiter 9 æquabat. Parte tamen Cœli horizonti proxima ad unum circiter gradum obtenebrata spatium fere parallelogrammum gradus 10 latum, 8 altum lumini concedebatur; quod in suprema parte magis, minus in ima splendescbat. Inter densiores nubes altera summe nigricans *AB* TAB. VI. Fig. 3. horizonti propemodum parallela, supra lumen, meridiem versus protendebatur.

Post horæ semissem vividius sensim micabat splendor; sensimque iterum minuebatur: quod pluries usque ad horam 9 observatum. Interim tenuis horizonti

Fig. 3.

Plaga Orientalis.

Plaga Meridionalis.



Horizon.

Fig. 1.

Philos. Trans. N<sup>o</sup> 460. TAB. VI.

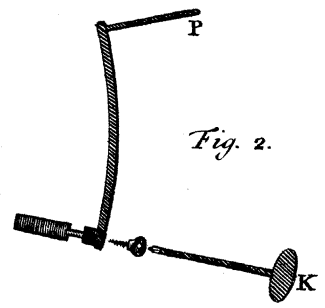
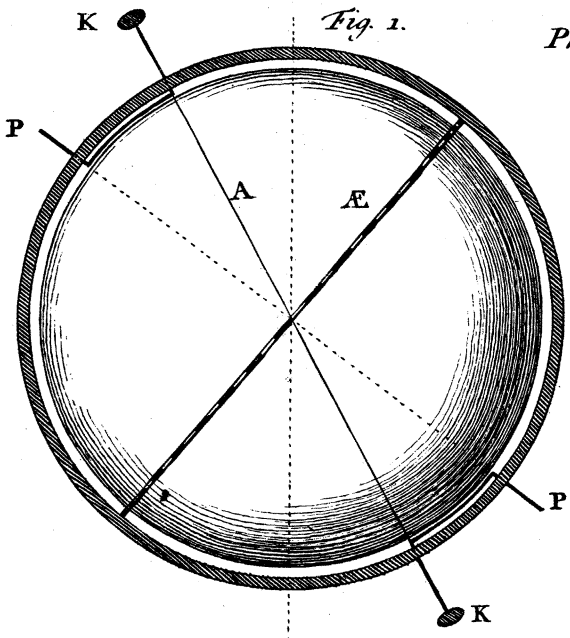


Fig. 2.

J. Mynde, sc.