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unam Summam Semidiametri utriusque luminaris & Parallaxis Lunæ, à Summâ verò auferatur Parallaxis Solis; hac enim ratione conflatur Summa Semidiametrorum Disci & Penumbrae. Ex hac & arcu inter centra, similiter ut prius, eliciuntur scrupula dimidia Durationis, eclipationis omnimodæ per omnem Terram; quæ per verum Horarium Lunæ à Sole in horas convertitur, ut prius. Et abstractione horum temporum à tempore Obscurationis maximæ, patefcunt initia, tam omnimodæ eclipationis, quam moræ Umbrae in Disco, quæ in suo tractu totum Solem tegit; additione verò, fines; omnibus à Meridie Uraniburgico numeratis.

Hæc subtilitas sufficere potest instituto negotio; demonstrationis verò certitudinem nondum assequitur; nisi & hoc insuper caveatur, ut arcus inter centra, priusquam adhibeatur ad investiganda scrupula Durationis & Moræ, nec non & verus Horarius Lunæ à Sole, priusquam per eum scrupula Durationis & Moræ convertantur in Horas & Minuta, quilibet seorsim dividatur per Parallaxin Lunæ, diminutam Parallaxi Solis, quotientesq; adjiciantur suis totis.

E X E M P L U M.

Extrat locus Plutarchi, libro de facie Lunæ, scripto circa annum Christi 100 plus minus: in quo collocutor unus commonescit cæteros illius Eclipsis, que nuper fuerit, que multas passim cæli stellas detexerit, statim à meridie exorsa. Examinatis multis annis circa centesimum Christi, secundum doctrinam Cap. XXIX; non occurrit verisimilior anno 1113, cujus die 1 Junij Uraniburgi H. 10°. 16' ante Meridiem invenitur ☉ in 8°. 30'. 17" II, (per præcessionem æquabilem) Semidr 15°. 0", ☉ in 8°. 32'. 14" II, ☽ 14°. 31' II, inter centra 0°. 33'. 8" Sept. & per ampliacionem 33°. 49". Distantia ab Apogeo D. 8. H. 15. Ergo Parallaxis ☽ 61°. 50", Semidiameter 15°. 54", verus horarius 35°. 10", unde ablati verus Solis, relinquit verum ☽ à ☉ 32°. 47", ampliata 33°. 18", Summa Parallaxeos ☽ & Semidiametrorum 1°. 32'. 44". Unde ablata Parallaxis ☉ relinquit summam Semidiametr. Disci & Penumbrae 1. 31. 45. Antilogarithm. 35. 619. Differentia Semidiam. ☉ ☽ est 0°. 54": tanta fuit Semidiameter Umbrae. Ablato sesquialtero Parallaxeos ☉ 1°. 39" à Parallaxi ☽, relinquitur semidiamr Disci Terra 60°. 21", Antilogarithmo 15. 411. Auser ab utroq; Antilogarithmorum, arcus inter centra 33°. 18" (ut simplicius agamus, quam accuratius) Antilogarithmum 4. 692, restant Antilogarithmi scrupulorum, quibus umbra Luna moratur in Terra disco, 50°. 20", & arcus durationis totius 1°. 25'. 26", quæ per horarium à Sole verum 32°. 47", dant moram dimidiam H. 1°. 32', durationem qualemcumq; dimidiam H. 2. 38. Mansit igitur umbra Luna in superficie Terra ultra tres horas, & visus est Sol ex parte deficere etiam diutius, quam per unam horam antecedentem, perq; unam sequentem; & cum esset Uraniburgi hora 7°. 37' matutina (æqualis) cepit alicubi Sol ex parte deficere; Hora 8°. 43' cepit alicubi totus deficere; Hora 11°. 47' deseruit umbra Terras, Hora 12°. 53' jam post meridiem, etiam

Penumbra Terris excessit, omnis sc. corporis Luna particula, sese subduxit ex lineis omnibus, quæ quascumq; particulas Solis & Terra connectere possent. Hæc sic indagantur; quia locus nullus est expressus, in quo collocutores illi viderint Solem totum tectum.

Scrupula Disci Terra, à centro Disci numerata, convertere in Arcum circuli magni Terra, inchoatum à loco Terra, qui Soli perpendiculariter est subjectus.

PRÆCEPTUM 159.

LOGARITHMO Logistico Scrupulorum, quæ sint inchoata à centro Disci (ut sunt scrupula latitudinis, &c.) vel adime Logarithmum semidiametri Disci, si ea minor fuerit 60' scrupulis, vel adde si major illa. Quod hoc pacto conficitur, quæsitum inter Logarithmos Heptacosiadis, ostendit sub columella arcuum, arcum circuli Magni: vel etiam inter Logarithmos Semicirculi.

Ut in Exemplo priori

Semidiamr Disci 60.21 L. Log. — 585 privativ.
Scrup. inter centr. 33.49 L. Log. 57340

Conficitur 57925

Est igitur arcus Terra circuli magi 34° 4'

Quantum Terra spacium in latum extensum, umbra Luna involvat.

PRÆCEPTUM 160.

SCRUPULA latitudinis, seu inter centra, & adime Semidiametro Umbrae, si qua est, & adde; Differentiam illam & hanc Summam convertite in duos arcus circuli magni Terra; horum differentia prodet quæsitum. Nam quilibet ejus Gradus valet 15 Milliarum Germanica.

Ut in Exemplo priori

Eran scr. lat. ampliata 33°. 49"

Semidiam. Umbrae Luna 54

Differentia 33.55 Log. 60037

Summa 34.43 Log. 54718

Disci 60.21" Logarith. — 585 priv.

Fiunt arcus 33.30 Log. 59452

35.35 arith. 54133

Eorum differentia 2°. 5' dat miliaria 31.

Quod si aer supra capita nostra, latitudine 31 miliarium sit privatus lumine Solis, ut claritatem nullam faciat, poterunt utiq; stelle videri. Nam si quis splendor inest aëri, qui ultra hæc 31 miliaria excurrit, is aut post montes latet, aut si aer tam altus, à regione cæli, in qua Sol spectatur, longè circumcirca recedit.

15: (?): 50
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