

Refractiones coelestes, sive Solis elliptici phaenomenon illustratum — Editorial footnotes (draft)

Christoph Scheiner (1573/75–1650), S.J.. Drafted editorial footnotes for review before publication. Each note is keyed to its anchor in the **manuscript-grade complete edition** — the collated output that retains the per-batch/page scaffolding the anchors reference (produced by *ms*). The reading in the main text is **preserved as printed/transcribed** and is not altered by these notes. The note text below is a **draft** — review and edit before publication.

The notes are classified as follows:

- **Category B — source compositor error.** A printing, compositor, or scribal error in the source itself (a wrong letter or digit, a dropped or doubled word, a non-resolving citation). The likely intended reading is noted, but the main text preserves exactly what is printed.
- **Category C — author/source anomaly.** An anomaly originating with the author or the source rather than the typesetting (a factual or geographic slip, a misattribution, an internal inconsistency, or a deliberate but unusual feature). Recorded as written.

#	Anchor	Cat.	Item
1	batch_019 / p.64 (Observator, evening dial-time)	B	Dial hour 4 5/8 glossed as 35'25" where 5/8 of an hour is 37'30"
2	batch_025 / p.89 (running header)	B	Running header prints COELETES for COELESTES
3	batch_028 / p.111 (running header)	B	Running header prints COELETSES for COELESTES
4	batch_030 / p.109 (running header)	B	Running header prints COELETSES for COELESTES (second occurrence)
5	batch_027 / p.105 (last line, second worked example)	B	Point-letter printed as AC where the worked example requires AD
6	batch_028 / p.100 (on the flattening that follows refraction)	B	Masculine "eumque" for feminine "eaque" with subject Ellipsis

#	Anchor	Cat.	Item
7	batch_020 / p.69 (opening word; and the p.68 catchword)	B	"Hae" printed for the expected neuter "Haec incommoda"
8	batch_038 / p.151 (index headword)	B	Index headword printed "Ecclipsis Lunae" with doubled -cc-
9	batch_015 / p.57 (fig-p57-1)	B	Woodcut carries the label H twice
1	batch_018 / p.60 (fig-p70-1)	B	Woodcut carries the label K twice
0			
1	batch_024 / p.95 (first line)	B	"minor si minor fiat raritas" states the physics backwards as printed
1			
1	batch_007 / p.16 (Conclusio IV)	C	Conclusio IV names "Altitude" in both clauses
2			
1	batch_008 / p.31 (Lemma I, fig-	C	Woodcut carries an interior point H that the proof never invokes
3	p31-1)		
1	batch_009 / p.33 (Lemma III	C	Lines called "perpendiculares" are in fact the radii CD, CH, CG
4	demonstration)		
1	batch_009 / p.33 (citation to	C	Freiburg cites Euclid I.17 where the Internet Archive copy reads
5	Clavius's Euclid)		I.19
1	batch_016 / pp.52-54 (tail of the	C	A second numbered series restarts at 6 with no intervening rubric
6	chapter)		
1	batch_017 / pp.57-58 (observations	C	Middle rows of the Defectus
7	of 1614, table)		columns do not satisfy the author's own 34' relation
1	batch_026 / pp.102-103	C	Elliptical image lettered with
8	(instrument plate and its		mixed roman and Greek
	explanation)		characters
1	batch_029 / pp.103-104 (vapor-	C	The same side is called latus AD
9	thickness computation)		on one page and latus AB on the next
2	batch_032 / p.118 ("sic in 69	C	Cancer symbol set as the numeral-like figure "69"
0	versans")		
2	batch_033 / p.121 (Caput LIV,	C	Admonitio's stated separations
1	Admonitio)		(9", ~3', 12') are in internal tension
2	batch_038 / pp.149-152,	C	Index is only loosely alphabetized

#	Anchor	Cat.	Item
2	batch_039 / p.157, batch_041 / p.169 (Index)		

1. batch_019 / p.64 (Observator, evening dial-time) — *Category B* — *source compositor error*

The source prints the evening dial-time as "hora 4 5/8" glossed "35'25""; five-eighths of an hour is 37'30", so the gloss and the fraction cannot both stand. Both 1617 witnesses (Freiburg and the Internet Archive copy) print the figures identically, and the Stage-5 cold audit confirmed the reading on the tile, so this is a compositor slip in the source rather than a transcription error. Preserved as printed.

2. batch_025 / p.89 (running header) — *Category B* — *source compositor error*

The source prints the recto running header as "COELETES." here; the final S of "COELESTES." has dropped out of the standing head. The verso ("REFRACTIONES") / recto ("COELESTES.") alternation is otherwise regular through the gathering, and the same drop appears in the other 1617 witness. Preserved as printed.

3. batch_028 / p.111 (running header) — *Category B* — *source compositor error*

The source prints the recto running header as "COELETSES." — S and T transposed in the standing head. The individual letters are crisp on the scan and the Stage-5 cold audit confirmed the reading, so this is a compositor metathesis, not a misreading. Preserved as printed.

4. batch_030 / p.109 (running header) — *Category B* — *source compositor error*

The same metathesis as at p.111: the source prints "COELETSES." for "COELESTES." in the standing head. The error recurs wherever this piece of standing type was reused. Preserved as printed.

5. batch_027 / p.105 (last line, second worked example) — *Category B* — *source compositor error*

The source prints "mensurabis excessum A[C] in F vsque"; the passage is the second worked example — the AD anthypharesis, whose remainder FD is the page's catchword — so the second point-letter should be D. The printed glyph

reads more like C, which is most economically explained as a compositor's C-for-D slip. Preserved as printed, with the intended letter flagged.

6. batch_028 / p.100 (on the flattening that follows refraction) — Category B — source compositor error

The source prints "augetur cum ea aucta, eumque ea imminuta, decrescit"; the masculine "eumque" does not agree with the feminine subject *Ellipsis* and is most likely a compositor slip for "eaque". The sense — that the flattening grows and shrinks with the refraction — is unaffected and is translated accordingly. Preserved as printed.

7. batch_020 / p.69 (opening word; and the p.68 catchword) — Category B — source compositor error

The source prints "Hae" both as the p.68 catchword and as the opening word of p.69, where the neuter plural "Haec" is required by *incommoda*. Because the form is repeated in the catchword it is a setting slip carried across the page-break rather than a stray. Preserved as printed.

8. batch_038 / p.151 (index headword) — Category B — source compositor error

The source prints the index headword as "Ecclipsis Lunae" (doubled -cc-) for the standard *Eclipsis*. Preserved as printed, since index headwords are cited by their printed form.

9. batch_015 / p.57 (fig-p57-1) — Category B — source compositor error

The woodcut for this figure letters H twice — once at the lower right of the circle (the equator point, consistent with the equator FGEH named in the text) and once centred below the circle. The running text names only one H, so the second is most likely an engraver's or compositor's duplicate label. Preserved as engraved; the description records both positions rather than silently suppressing one.

10. batch_018 / p.60 (fig-p70-1) — Category B — source compositor error

The woodcut of the lumpy solar disc appears to letter K twice, once near the level of the dashed width-line at the right and once at the lower boundary. The text ("HE, EIF & FK, gibbi solares") names the hump FK only once, implying a single K, so the duplicate is most likely a woodcut/compositor doubling. Preserved as engraved.

11. batch_024 / p.95 (first line) — Category B — source compositor error

The source prints "& maior quidem euadit refractio, si maior densitas, minor si minor fiat raritas" — literally "greater refraction if greater density, smaller if the rarity becomes smaller," which is physically backwards, since less rarity means greater density and hence more refraction. The glyphs are legible as printed, so this is an apparent compositor ellipsis (an omitted density-term in the second clause) rather than a misreading. Rendered by the coherent sense — smaller refraction as rarefaction sets in — and preserved as printed.

12. batch_007 / p.16 (Conclusio IV) — Category C — author/source anomaly

Conclusio IV states the horizontal Sun's refraction in terms of the Altitude dimensions in both of its clauses, where a reader may expect Longitude in one of them. The same wording stands in the other 1617 witness, and the surrounding argument (that the oblique dimensions of the off-zenith Sun approach Altitude-nature far more than Longitude-nature) supports it as the author's intent rather than a setting error. Preserved as printed.

13. batch_008 / p.31 (Lemma I, fig-p31-1) — Category C — author/source anomaly

The woodcut for Lemma I carries an interior point H, but the printed demonstration names only A, B, C, D, E, F, G and I. The label was confirmed present on the plate by cross-witness collation, so it is a genuine feature of the source — most plausibly a construction or auxiliary point left in the cut, or a label not keyed to the argument as printed. Recorded as engraved.

14. batch_009 / p.33 (Lemma III demonstration) — Category C — author/source anomaly

The source calls CD, CH, CG "perpendiculares," but the clause that follows — that they are all equal, by Euclid's definitions — shows them to be the radii of the circle BCD. The looseness is the author's or the compositor's; the text is rendered faithfully as "perpendiculars" and preserved as printed.

15. batch_009 / p.33 (citation to Clavius's Euclid) — Category C — author/source anomaly

The Freiburg copy cites the second corollary to proposition I.17 of Euclid as edited by Clavius; the Internet Archive copy of the same 1617 edition appears to read I.19 at this point, though that witness flagged its own reading as uncertain. Freiburg's I.17 agrees with the adjacent citation in the same demonstration and is retained. Noted as an open cross-witness variant.

16. batch_016 / pp.52-54 (tail of the chapter) — Category C — author/source anomaly

Two enumerations overlap at the end of this chapter. The italic sub-rubric on p.52 introduces "Nota 7.", continuing the chapter's Nota series (its own text cross-references "Notandi 6"); then on pp.53-54 a separate run of numbered items "6. ... 10." begins with no visible heading between "...integrum volumen exigent." and "6. Accidit etiam...". The second series appears to resume a 1-5 block from earlier in the chapter whose rubric the source does not repeat. Both series are preserved exactly as printed.

17. batch_017 / pp.57-58 (observations of 1614, table) — Category C — author/source anomaly

Top and bottom rows of the table satisfy the author's stated relation to a 34' solar diameter ($7 \rightarrow 4'51''$; $9 \rightarrow 3'46''$; $4\frac{1}{2} \rightarrow 7'33''$; $2\frac{4}{5} \rightarrow 12'8''$ all check), but several middle rows do not (e.g. $6\frac{1}{4} \rightarrow 5'40'''$, and the 12 October $6\frac{6}{9} \rightarrow 7'17''/6'30'''$). The cells were cross-checked digit-for-digit against the second 1617 witness and cleared a cold confab audit, so the discrepancy is in the source, not the transcription — and Scheiner himself warns on p.58 that the engraver's and compositor's figures in these observations are not to be trusted. Preserved as printed.

18. batch_026 / pp.102-103 (instrument plate and its explanation) — Category C — author/source anomaly

The plate letters the projected solar ellipse "abωc", and the explanation on the following page gives its cardinal points individually as "ω, α, b, c" — mixing roman a/b/c with Greek ω/α, and shifting between a and α for the same point. Both witnesses print it so. Preserved verbatim rather than normalized to a single alphabet.

19. batch_029 / pp.103-104 (vapor-thickness computation) — Category C — author/source anomaly

The source names the vapor-thickness side "latus AD" (= 142 German miles) on p.103, then writes "cum latus AB, sit milliar. 142" on p.104 before immediately reasoning "erit AD, ad DB". Since D lies on AB adjacent to A, the author treats AD and AB as interchangeable for this magnitude. Preserved as printed on each page.

20. batch_032 / p.118 ("sic in 69 versans") — Category C — author/source anomaly

The source sets the sign of Cancer as the numeral-like figure "69" ("sic in 69 versans") — the compositor's substitute for the astronomical symbol, not an Arabic number. Rendered as the zodiac sign; the printed form is recorded here.

21. batch_033 / p.121 (Caput LIV, Admonitio) — Category C — author/source anomaly

The Admonitio argues that the line AB may serve as both the rational and the sensible horizon, but the separations it cites in support — 9", about 3', and 12' — do not sit easily with one another. The same figures stand in the other 1617 witness, so the tension is the author's, not a transmission fault. Preserved as printed.

22. batch_038 / pp.149-152, batch_039 / p.157, batch_041 / p.169 (Index) — Category C — author/source anomaly

The index orders entries by first significant word only loosely: within D, *Declinatio* follows *Diaphanitas*; *Protheoremata* is printed before *Pronunciata*; and "Io. Kepleri" — a name to be filed under I — sits inside the K section between "Kaumata & Chasmata" and the L heading. *Cristallus* also appears both as a main lemma and as a sub-lemma under *Experientiae variae*. All are features of the source's own compilation and are preserved in the printed order.