

Sefer ha-Techunah (ספר התכונה) — Editorial footnotes (draft)

R. Chaim Vital (1620-1542 ,חיים ויטאל). 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.
- **Missing-source lacuna.** A point where source text is missing, damaged, or illegible. The note states what should stand at the gap and points to an alternate witness where one is known.

#	Anchor	Cat.	Item
1	batch_001 / f. 1r, outer margin	lacuna	A conservation tissue over the outer margin covers later-hand inscriptions on this side.
2	batch_001 / f. 1v L20	C	The number of inquiries the work divides into is left open at 33 or 34; NLI carries no numeral at all.
3	batch_001 / f. 1v L8	C	The author's name in the signed preface is four sort-groups for a five-letter name; printed as an open class.
4	batch_001 / f. 1v, scriptural quotation	B	The leaf writes לא הביטו where the received text of Yeshayahu

#	Anchor	Cat.	Item
			5:12 has נִבְּיטוֹ; no reference is written on the leaf.
5	batch_002 / f. 2r figure (clime diagram)	B	The seven compartments of the clime diagram are labelled אַקלים, and the figure's own count corroborates the facing prose.
6	batch_003 / f. 3v L16	B	רוחב — latitude — closes a computation of western longitude; transcribed as read.
7	batch_003 / f. 3v, a possible authority	C	A form resembling Ptolemy's name stands here with no control and no support; not adopted.
8	batch_003 / f. 3v, the latitude of Jerusalem	C	The latitude of Jerusalem stands between 32 and 33; the committed value carries its expectation coincidence on the record.
9	batch_004 / f. 4r onward, running headers	B	The running head lags the gold chapter rubric by one side through most of the codex; both are printed as written.
10	batch_005 / f. 5r L26 against f. 5v L6	B	Five kinds of variation are announced and an apparent sixth follows.
11	batch_005 / f. 5r, outer margin	lacuna	A three-line gloss in a second, later hand beside L12–L14, unread.
12	batch_005 / f. 5v L24	lacuna	A solid ink blot covers one character of a planet-count; the ink is excess, not loss.
13	batch_006 / f. 6r L20	B	Two consecutive kinds are both numbered second.
14	batch_008 / f. 7v catchword against f. 8r	B	The catchword does not match the first word of the following

#	Anchor	Cat.	Item
			side.
15	batch_008 / f. 8r L4	C	A word whose sort order is settled but whose completion cannot be established; עשרה is live and not adopted.
16	batch_008 / f. 8v, axis labels	C	The two axis labels share one word that cannot be identified; three proposed readings are each refuted by the shape.
17	batch_008 / f. 8v, axis-label wording	B	NLI 9573 carries the f. 8v axis labels without the demonstrative הַ that this codex writes.
18	batch_009 / f. 9v, NE quadrant of the plate	B	The two witnesses exchange the אופק labels in the north-east quadrant; not harmonised.
19	batch_009 / f. 9v, plate	B	Red is used as a drawn element on this figure, against a gold-only description of the codex's diagrams.
20	batch_009 / f. 9v, plate labels	C	Four labels on this plate remain unread, and a small north-east label survives the second witness.
21	batch_010 / f. 10v L16	B	Chapter 5 opens mid-side on the verso, against the work's own chapter concordance.
22	batch_011 / f. 11r, wheel figure	B	The rim of this wheel has eight captioned compartments in CBL against twelve uncaptioned ones in NLI.
23	batch_012 / f. 12v	C	Two values that would be complements in a right angle are left unconfirmed, because the arithmetic would close them.

#	Anchor	Cat.	Item
24	batch_012 / ff. 11v–13r, the clime series	B	The clime series does not run monotonically across four consecutive leaves, in both its columns.
25	batch_013 / f. 13r L2–L7	C	A run of month-counts forms a clean arithmetical staircase and is flagged rather than trusted.
26	batch_014 / f. 14r L15	C	A count is withheld because the available sort would give an invalid gematria order.
27	batch_014 / f. 14r L19–L22	B	The ordinals of a list of figures run out of order across the leaf turn.
28	batch_014 / f. 14v L6–L7	B	Two round-bracketed (ⲛⲓⲛ ...) collation notes in the scribe's own hand — the codex's variant apparatus.
29	batch_015 / f. 15r, numeral 11	C	11 = ⲛⲓ is excluded on the ceiling test at a locus where the astronomy wants 11.
30	batch_015 / f. 15r, plate point-letters	B	The figure carries point-letters — twelve certain — but which letters they are is withheld.
31	batch_015 / f. 15v L18–L19	C	A parsing ambiguity in the source that silently rewrites the table of values; parsed one way, no figure adopted.
32	batch_015 / f. 15v L7	C	Permanently unresolvable — the scribe does not distinguish ⲟ from ⲁ, measured on this leaf.
33	batch_016 / f. 16v L4	C	The third season-name in an otherwise complete sequence of four is unread and is not completed by pattern.
34	batch_017 / f. 17v L18	B	A scribal cancellation — the only scribal intervention on the

#	Anchor	Cat.	Item
			opening; the cancelled word is not recoverable.
35	batch_018 / f. 18r, foliation	B	The codex foliates its rectos with the euphemistic <i>chai</i> form ח'ן for 18.
36	batch_018 / f. 18r, outer margin	lacuna	A two-line gloss in a second, later hand, level with the running header and keyed to no body line.
37	batch_019 / f. 19r L19, L27 and f. 19v L3, L5	C	A recurring word turns on one sort that decides whether the work names a sphere or says one resembles another.
38	batch_019 / f. 19r L22–L23	B	The same phrase stands on two distinct ruled lines; scribal repetition and reader doubling are not separated.
39	batch_019 / f. 19v L28	C	360 = ס"ש rests on the second witness, not on this codex's ink; the third value on the line stays empty.
40	batch_020 / f. 20r L6	C	The author says his tables were COPIED FROM a named predecessor; the name reads [[Z]]akut.
41	batch_020 / f. 20r, foliation practice	B	The ink foliation is inconsistent in letterform, in the presence of gershayim, and once in sort order.
42	batch_020 / f. 20v	C	The tropical-year correction term is refused, and = ה"סש 365 is settled at one locus only.
43	batch_020 / f. 20v L4, L7–L8, L10	B	The source itself records a disagreement among the astronomers over the length of the year.

#	Anchor	Cat.	Item
44	batch_021 / f. 21r	B	Gold is used here for the construction lines of a figure rather than for rubric.
45	batch_021 / f. 21r L24 and the plate	B	The source uses both התנין and התלי for the dragon within one passage; not normalised.
46	batch_021 / f. 21r, a recurring technical term	C	A term governing the whole opening is undecided between two different words, not two spellings.
47	batch_021 / f. 21r, outer head margin	lacuna	A small round hole in the outer head margin, clear of all text.
48	batch_021 / f. 21r, plate inner labels	C	ראש and זנב are proposed for the two inner crossing labels and refused; the left-inner זנב is an adjudication, not a witness.
49	batch_021 / f. 21v L17 and L25	C	Two bare נ"א groups stand in sexagesimal positions, ambiguous between the numeral 51 and the variant siglum.
50	batch_021 / f. 21v L18, the Dragon's period	C	The value 18 is established on ink, and the two slots beside it in the same clause stay empty.
51	batch_022 / f. 22, running headers	B	Recto header פ"ט, verso header ט"פ — the chapter advances across the leaf.
52	batch_022 / f. 22r	B	This side carries twenty-nine body lines against the verso's twenty-eight, and an apparent thirtieth is show-through.
53	batch_022 / f. 22r L5–L7	B	The subtraction as written does not yield the remainder the passage states.
54	batch_022 / f. 22r and f. 22v, head and foot bands	B	The red band at the head and foot of these leaves is the

#	Anchor	Cat.	Item
			painted edge of the book block, not rubrication.
55	batch_022 / f. 22r, arc label	B	An arc label עובי גלגל is added to the census; the completion that would tie the plate to the prose is refused.
56	batch_022 / f. 22r, plate centre label	C	The centre label cannot be read, but two proposed readings are positively excluded.
57	batch_022 / f. 22v L24–L28	B	Quadrant ordinals do not form a clean sequence, and one value stands between signs and degrees.
58	batch_022 / f. 22v, marginal gloss	lacuna	Three crisp lines of a marginal gloss on this side are left untranscribed.
59	batch_023 / f. 23r and f. 23v, paper	B	A watermark is visible in the leaves — a hooked stroke and a diagonal, in the paper rather than in ink.
60	batch_023 / f. 23v	B	Two Hebrew words for the sun are used in this work and are not conflated.
61	batch_023 / f. 23v, daily-course figures	C	Discrepant daily-course figures on one line, not harmonised; the same sort reads differently on two image panels.
62	batch_024 / f. 24r L7	B	A scribal interlinear addition — רום written small above the line, with nothing cancelled beneath it.
63	batch_024 / f. 24r and passim, internal chapter cross-references	C	The work's internal chapter cross-references are largely unresolved; the numerals are unread and the citations do not resolve.

#	Anchor	Cat.	Item
64	batch_025 / f. 25r and f. 25v, marginal glosses	lacuna	A fourteen-line gloss on the recto and a short one on the verso, both unread.
65	batch_025 / f. 25r, gold display rubric	C	The chapter rubric reads פרק 51 = א"נ in a series running 12 to 18 — impossible and unresolved.
66	batch_025 / f. 25v L8	B	והחלוקה קטן stands twice within one line — a probable dittography, printed twice.
67	batch_026 / f. 26r L1	C	An inclination figure open at 21 or 51; both values are refuted and the group reads כ"א/ד.
68	batch_026 / f. 26r catchword and f. 26v first word	C	A two-sort against three-sort dispute at the leaf turn; תוך is unavailable and the ם must not be restored.
69	batch_026 / f. 26v	B	מצד stands six times where a smoother but ungrammatical reading had been printed.
70	batch_026 / f. 26v and f. 27v, outer head margins	B	An unexplained brown mark stands at effectively the same position on two consecutive leaves.
71	batch_026 / f. 26v, plate	B	Blue ink stands as a drawn element on this figure, and two panels read one compartment label two different ways.
72	batch_027 / f. 27v	B	The source reports a dissenting opinion — that the sun has no small epicyclic sphere and hence no apogee.
73	batch_027 / f. 27v L25	B	A construction with named point-letters begins here and its figure is not on the opening.
74	batch_028 / f. 28r L16–L17	C	One sort stands at both lines, so

#	Anchor	Cat.	Item
			whatever value is adopted must be the same at both; no value is adopted.
75	batch_028 / f. 28r L25	B	The running head fails to advance across a chapter opening — a break in the codex's own convention.
76	batch_028 / f. 28r L27 against f. 28v L2 and the plate	B	The text gives two counts of the figure's lines and the plate carries a third; reported, not resolved.
77	batch_028 / f. 28r, plate	B	Three colours stand on one plate: gold outermost, red-orange in the middle, blue innermost.
78	batch_028 / f. 28v	B	Two phrases recur eight and seven times on this side; the repetition is the author's own template.
79	batch_028 / f. 28v L16	B	A word in the body is enclosed in a drawn frame — the first such mark in the codex.
80	batch_028 / f. 28v L4–L5, the precession rates	C	Three precession rates settle independently and do not cohere; harmonising them would publish an emendation as a transcription.
81	batch_028 / f. 28v L6	C	הַתְּמוּנָה בְּעַל [ה] may name a work or an authority, and is deliberately not entered as one.
82	batch_029 / f. 29r L7, L14, L17	C	אִי"א serves two functions in the source and neither is settled across the work.
83	batch_029 / f. 29r and f. 29v	B	חֲלָקִים carries three incompatible senses within one batch, and the glossary lemma

#	Anchor	Cat.	Item
			does not govern.
84	batch_030 / f. 30, palettes	B	Three drawings on one opening use three different palettes.
85	batch_030 / f. 30r	B	The scribe spells ככב defectively; the spelling is preserved.
86	batch_030 / f. 30r L27 and the same line	C	360 is settled on a measured spur, while the neighbouring 'לד/ר' on the same line is deliberately withheld.
87	batch_030 / f. 30r, the two recto drawings	B	This side carries two separate drawings, not one; they share no pigment, construction line or frame.
88	batch_030 / f. 30v L16 and L20	C	Two loci where an adverb and a numeral compete; both prior readings are refuted and the value is withheld.
89	batch_031 / f. 31r L25 and L27	C	Two numerals withheld, one of them untested by either reader; 23 is named as the trap at L27.
90	batch_031 / f. 31r L28	C	A stated maximum is refused rather than supplied.
91	batch_031 / f. 31r L4 and f. 31v L1 against f. 31v L14	B	One opening gives both six and seven as the number of planets.
92	batch_031 / f. 31v, foot	B	No catchword stands at this foot, where the plate occupies the position.
93	batch_032 / f. 32, chapter numerals	B	One opening carries three chapter numerals that disagree with one another.
94	batch_032 / f. 32r L7	B	CBL numbers the true motion fifth where NLI numbers it fourth — reported, not settled.
95	batch_032 / f. 32r L7, the	C	A three-figure value open across

#	Anchor	Cat.	Item
	numeral		103, 104, 107 and 150; 130 and a reading in ך are excluded.
96	batch_032 / f. 32r, gold display rubric	B	The gilt rubric reads = פֶּרֶק ט"ו 15, and it does not settle the running headers on the same opening.
97	batch_032 / f. 32r, motion terms	B	מַעֲגוּל and מַסְלִיִּל are carried as two distinct terms; merging them would be a substantive claim.
98	batch_032 / f. 32v L25	C	The presence or absence of gershayim inverts the clause — thirty-one parts, or a negation.
99	batch_033 / f. 33r L6	C	A triple of numerals is transcribed and its construal refused.
100	batch_033 / f. 33r L9	C	Two round values on one line stay empty, on a re-stated ground; do not cite the withdrawn control.
101	batch_033 / f. 33v L17	B	An interlinear addition in the scribe's own hand, and a marginal annotation in a second hand in olive ink.
102	batch_034 / f. 34, the moon	B	The source uses both לבנה and ירח for the moon within the same sentences.
103	batch_034 / f. 34v, the two drawings	B	The two drawings on one leaf carry two independent letter series, so the leaf carries two שׁ and two שׂ.
104	batch_034 / f. 34v, the two figures	B	Rim letters: four on the right figure, three on the left; the shading of the moon-circles is not uniform.
10	batch_035 / f. 35r L8 and f. 35v	B	Two enlarged display words

#	Anchor	Cat.	Item
5	L9		open paragraphs in body ink, neither gilded.
10 6	batch_035 / f. 35r, blue pigment	B	The blue on this figure is the manuscript's own palette, not a later annotation.
10 7	batch_035 / f. 35r, plate caption	B	The caption names an eccentric while the geometry drawn is concentric; do not publish as a scribal error.
10 8	batch_036 / f. 36r L22	C	The <i>halakim</i> slot is left empty; 793 is refused precisely because it fits perfectly.
10 9	batch_036 / f. 36r catchword	C	Three sorts measured, one identified; 'נל fits the chapter and is deliberately not chosen.
11 0	batch_036 / f. 36r, line count and section break	B	The recto is twenty-eight lines on a non-uniform grid; the chapter closes at L22 and the new one opens at L23.
11 1	batch_036 / f. 36v	B	Short dark strokes stand beneath individual words — possible scribal underlining, selectively applied.
11 2	batch_036 / f. 36v L22	B	The passage appears to deny that the dragon or Teli exists as such — a doctrinally notable statement about the nodes.
11 3	batch_037 / f. 36v catchword against f. 37r	B	The catchword does not match the first word of the following side on the reading taken.
11 4	batch_037 / f. 37	B	The source records a disagreement among the astronomers over whether the earth's shadow tapers to a point.
11 5	batch_037 / f. 37v L9 and L14	B	The scribe writes 16 in a form that Hebrew usage ordinarily

#	Anchor	Cat.	Item
			avoids; recorded as written.
11 6	batch_038 / f. 38, line-fillers	B	Eight line-filler dashes stand on one leaf, one markedly longer than the rest.
11 7	batch_038 / f. 38, scribal marks	B	Two words on the recto are enclosed in a drawn curve, and a word on the verso is written larger and heavier; both reported, not adopted.
11 8	batch_038 / f. 38r L9	B	A figure written $10 = \tau''\iota'$ stands against $14 = \tau''\iota'$ committed twice on the preceding leaf in what reads as the same computation.
11 9	batch_038 / f. 38r catchword	C	The catchword is settled against one rival only; a second rival differing in two sorts was never engaged.
12 0	batch_038 / f. 38r, eclipse plate	B	The blue pigment on this plate encodes eclipse magnitude, and must not be removed by monochrome processing.
12 1	batch_038 / f. 38r, plate label census	B	Fifteen label positions are counted on this plate where the edition carries ten; the count is the finding, not the names.
12 2	batch_038 / f. 38v, plate	B	A figure on this side carries no label and no caption at all — a positive finding of absence.
12 3	batch_039 / f. 39r L6–L7	B	Fifty minutes is equated with about two hours; the passage does not close arithmetically.
12 4	batch_039 / f. 39v L1	C	Four sorts spelling זכות stand inside a span the edition prints unread; the name is not asserted.

#	Anchor	Cat.	Item
12 5	batch_039 / f. 39v L15	B	The gilded chapter rubric is set into the measure, with the black text wrapping around it for two lines.
12 6	batch_039 / f. 39v L17	C	A word repeatedly proposed as Venus is not Venus on either reading; the glossary divergence is filed, not harmonised.
12 7	batch_039 / f. 39v catchword	C	The catchword yields no obvious Hebrew word, which may mean one of its three sorts is wrong.
12 8	batch_039 / f. 39v, running header against the body rubric	B	The running header reads chapter 17 while the body opens chapter 18 in gold; both recorded as written.
12 9	batch_040 / f. 40, running head	lacuna	A rubbed area stands at the left of the running head on both sides of this leaf, illegible.
13 0	batch_040 / f. 40r L12	C	The first sort of an apparent author-attribution is א, but Ptolemy is not asserted.
13 1	batch_040 / f. 40r L18 and f. 40v L5, L17	C	Chapter cross-references stand against this leaf's own running head; the bracketed ם is not settled.
13 2	batch_040 / f. 40r L2–L3 and L8	C	360 is withheld three times because the preceding clause supplies it, and the sun/moon size ratio is withheld on a sort count.
13 3	batch_040 / f. 40r, plate	B	The figure carries no labels and no caption, although the prose on the same side expressly cites it.
13	batch_041 / f. 41v	B	A marginal gloss in tan ink, and

#	Anchor	Cat.	Item
4			small marginal dots beside three lines.
13 5	batch_041 / f. 41v L19	B	The euphemistic form ט"ו ב' stands in body prose, not only in rubrics and running heads.
13 6	batch_041 / f. 41v L3	C	A named authority is credited with a table and the name is not recovered.
13 7	batch_042 / f. 42, Jerusalem	B	Jerusalem is named at nine places on this opening — the first place-name established anywhere in the codex.
13 8	batch_042 / f. 42, numeral coverage	C	Not one numeral is committed on either side of this opening; fifty-eight slots stand open.
13 9	batch_042 / f. 42, running heads	C	Both the reading and the value of this leaf's running heads are open; a short ' vanishes below about 4×.
14 0	batch_042 / f. 42, the leaf turn	C	The two passes agree the recto foot and verso opening carry one sort and disagree which; the external check has not been run.
14 1	batch_042 / f. 42r L24	C	A second unnamed authority is credited with a composition, and the name is not recovered.
14 2	batch_042 / f. 42r, marginal gloss	B	Eleven lines of a later-hand gloss stand beside the text and are untranscribed; whether they are one block or two is open.
14 3	batch_042 / f. 42v L22	C	A numeral row with four withheld values, turning on one recurring token that may be a unit and not a figure.

#	Anchor	Cat.	Item
14 4	batch_042 / f. 42v, gutter margin	B	Two letter-like forms in grey-brown ink stand in the gutter margin, unexplained.
14 5	batch_043 / f. 43, running header	B	The running header changes between the two sides of one leaf, marking the start of a different work.
14 6	batch_043 / f. 43r L11	B	The author's name is written with four sorts, ויטל, against the expected ויטאל.
14 7	batch_043 / f. 43r L13	C	An honorific chain surrounds a name that is not recovered — the codex's third such locus.
14 8	batch_043 / f. 43r L14	C	מטעך החיים is legible, and whether it is a book title or a common noun phrase is undecided.
14 9	batch_043 / f. 43r L9	B	A rubricated colophon closes the First Gate here, and a second work opens on the same leaf.
15 0	batch_043 / f. 43r catchword	C	A yod is present or absent in the catchword; a bare sort count, unsettled.
15 1	batch_043 / f. 43v	B	ונפלאותיו stands twice on this side, on two different lines — a genuine scribal repetition.
15 2	batch_043 / f. 43v L17 and L20	C	Single sorts decide between an astronomical and a hagiographical reading of the second work's opening.
15 3	batch_043 / f. 43v, catchword	C	The catchword is present, against an absence claim; only its letters are in doubt.
15 4	batch_044 / f. 44r L27	C	The last leaf carries no date, name, place or scribal

#	Anchor	Cat.	Item
			subscription, and the group shaped like a year cannot be one.
15 5	batch_044 / f. 44r, closing formulae	C	The conventional closing formulae are refused at the end of the text, precisely because they are what a closing position supplies.
15 6	batch_044 / f. 44r, final word	C	The codex's last word is unread; six or seven sorts, partly classed.
15 7	batch_044 / f. 44v	B	The final side of the codex is blank; an inherited note describing a multi-column table there is refuted.
15 8	f. 1v — the author's four-part prospectus	C	The MSS name the unit הדרש where the print reads ראש — a variant in the work's own structure

1. batch_001 / f. 1r, outer margin — *Missing-source lacuna*

A strip of conservation tissue lies over the outer margin of f. 1r and covers inscriptions in a hand other than the scribe's. What stands beneath it cannot be read, and nothing is supplied. The obstruction is a modern repair rather than loss of the leaf, so the text is present and merely inaccessible in this reproduction; a reader who needs it should consult the manuscript itself or a reproduction taken before the repair.

2. batch_001 / f. 1v L20 — *Category C — author/source anomaly*

The preface states the number of inquiries into which the work divides, and the numeral reads 33 — 'לג' or 34. Four headings follow. Reading 34 = ל"ד would make the leaf agree with itself, which is the reason the reading was refused rather than the reason to adopt it: a numeral supplied because it harmonises the leaf is an emendation, not a transcription. The fourth ordinal later on the same line is committed as ד' on the absence of a descending foot, and that does not settle the count above it. Collation against NLI Ms. Heb. 28°9573

6. batch_003 / f. 3v L16 — Category B — source compositor error

The computation on this line concerns western longitude and closes with רוחב, latitude. The word is transcribed as it stands and is not emended to אורך. The reasoning is deliberate: if the leaf really does write רוחב here, that is a finding about the manuscript, and correcting it would remove the evidence for it. A reader should nonetheless note that a related and confirmed defect ran the other way in this edition's own first pass — מדינה, the locality, was misread as מעלה, the degree, at some seventeen loci across ff. 8–12, inverting the sense of *the longitude of a locality* into *the length of a degree* — so the vocabulary of this passage has been under scrutiny and this occurrence survived it.

7. batch_003 / f. 3v, a possible authority — Category C — author/source anomaly

A form resembling לבטלמיו"ס — to Ptolemy — stands on this side. It is not adopted: no letterform control was taken for it and nothing on the leaf supports the identification, and a famous name is precisely what a reader supplies to a shape rather than reads from it. A comparable occurrence at f. 40r L12 has since had half its test run, the first sort being established as ב and not כ, and even there the identification is expressly withheld. Neither locus may be quoted as an authorial citation of Ptolemy.

8. batch_003 / f. 3v, the latitude of Jerusalem — Category C — author/source anomaly

The latitude given for Jerusalem reads ל"ג or 33 — ל"ב or 32 — and both are values the tradition carries. The figure was committed with its coincidence with the received value recorded at the locus rather than banked as corroboration, which is the practice this edition follows wherever a reading agrees with a constant held from outside the manuscript. A reader citing the work's latitude for Jerusalem should treat the alternative as live. Jerusalem is named at nine places on f. 42, which is where the work's worked example is set out.

9. batch_004 / f. 4r onward, running headers — Category B — source compositor error

Through most of this codex the running head and the gold chapter rubric on the same leaf disagree, the head standing one chapter behind the rubric. The pattern is visible from f. 4r (א"פ against פרק ב') and recurs at ff. 6v, 8r, 10v, 13r, 14v, 16, 19, 22r, 33v, 36 and 39v. The mechanism is that a chapter opens part-way down a side, and the head of that side still names the chapter that was running when the side began. Neither member of any pair is corrected from the other, and the lag is

not used to supply an unread numeral: it is a layout habit of the copy, and using it as an argument would be reasoning from what the leaf ought to say. Two departures from the habit are recorded separately, at f. 28 where the head fails to advance across a chapter opening, and at f. 40 where it no longer lags at all. On this codex פ in a running head is פרק, chapter, and never the letter-value 80.

10. batch_005 / f. 5r L26 against f. 5v L6 — *Category B — source compositor error*

f. 5r L26 announces ה' שינויים — five kinds of variation — and f. 5v L6 opens what reads as a further one, עוד יש שינוי. The discrepancy is recorded rather than resolved. It is not certain that the second passage introduces an additional member: the author's formula for adding an item elsewhere on this leaf takes אחר rather than an ordinal, and the disputed word at f. 5v L6 is not read closely enough to exclude that. Both passages are printed as they stand.

11. batch_005 / f. 5r, outer margin — *Missing-source lacuna*

A gloss of three lines in a hand other than the scribe's stands in the left margin beside L12 to L14, and is not transcribed. It is one of the fourteen glossed sides in this codex. No claim is made about its content or about whose hand it is.

12. batch_005 / f. 5v L24 — *Missing-source lacuna*

A solid ink blot on f. 5v L24 covers a single character within a count of planets. The obstruction is excess ink rather than lost ink — nothing has flaked or been abraded — so the character is present under the blot and simply cannot be seen. No value is supplied for the count.

13. batch_006 / f. 6r L20 — *Category B — source compositor error*

Two consecutive members of an enumeration on this line both carry the ordinal ב'. Two consecutive kinds cannot both be the second. The alternatives are a misreading of one of the two sorts, ב for ג, or a scribal doubling of the ordinal; neither is chosen and both members are printed as they stand.

14. batch_008 / f. 7v catchword against f. 8r — *Category B — source compositor error*

f. 8r opens חצי היום, while the catchword at the foot of f. 7v reads חלק with an unresolved final sort. The second sort of the word opening f. 8r carries no ascender and therefore cannot be a ל. The two do not match, and this is the one hard break in leaf continuity in the opening quires. Nothing is emended: whether the mismatch reflects the scribe's own slip, a misreading of the catchword, or a disturbance in the gathering is not decided here.

15. batch_008 / f. 8r L4 — Category C — author/source anomaly

At f. 8r L4 the sort order is settled as ν then ψ — the reverse of what had been read, and the reverse of the order at L3 and L5 — but the completion of the word cannot be established, because the descender of L3 crosses the band in which the remaining sorts stand. עשרה is a live candidate and is deliberately not adopted: the surrounding argument does not require a cardinal number, and the three apparent ten degrees on this side dissolved on re-probing into the שעור/כשיעור family, which stands in full on the same side at L7 and L12. The edition prints the locus unresolved rather than completing it.

16. batch_008 / f. 8v, axis labels — Category C — author/source anomaly

The two axis labels on f. 8v are established as naming the axes as lines rather than as poles, and both read זֶה קוֹ עַבְכִּי The shared word after קוֹ is not identified. כוכב is excluded on the sort count, קוטב on letterform, and קוֹ מְשׁוּה is not what stands in these labels; each of the three was a word supplied to a shape, and each is refuted by that shape. The עַבְכִּי alternation cannot be closed, this hand having no working discriminator for that pair. The edition prints the class and does not choose. A structural observation supports the pairing but does not name the word: every reader except the original census puts the same element in both labels, and two labels of one formula on one plate in one hand are unlikely to differ by a whole word.

17. batch_008 / f. 8v, axis-label wording — Category B — source compositor error

The second witness, NLI Ms. Heb. 28°9573, carries the axis labels of this figure without the demonstrative זה with which the Chester Beatty codex opens each of them. Recorded as a variant between the witnesses; neither is corrected, and nothing is imported in either direction.

18. batch_009 / f. 9v, NE quadrant of the plate — Category B — source compositor error

In the north-east quadrant of this figure the Chester Beatty codex and NLI Ms. Heb. 28°9573 each carry both אופק labels, in swapped positions. The astronomical argument that favours the Beatty arrangement is a coherence argument — it reasons from what the diagram ought to mean — and is refused as grounds for correcting either witness. The divergence is printed as a genuine variant, with neither copy emended.

19. batch_009 / f. 9v, plate — Category B — source compositor error

The innermost circle of this figure is an opaque orange-red stroke of even width — a drawn element of the construction, not a rubric or a later marking. This is the first appearance of red as a construction colour in the codex, against a description of the manuscript's figures as gilded. The palette of these diagrams is richer than any single-colour account allows: blue appears as a drawn element at f. 26v and again in the eclipse plate at f. 38r, three colours stand on one plate at f. 28r, and the two drawings on f. 34v use different palettes from one another.

20. batch_009 / f. 9v, plate labels — *Category C — author/source anomaly*

Four labels on this figure are not read. The small north-east label is among the five plate loci on which collation against NLI Ms. Heb. 28°9573 was not decisive — that witness was strictly decisive on only 7 of 22 plate loci examined, and this is part of the residue. Crop boxes and candidate readings are on record; the edition commits nothing at these positions rather than supplying labels that the figure's sense would make obvious.

21. batch_010 / f. 10v L16 — *Category B — source compositor error*

A gold rubric **פרק ה'** opens chapter 5 part-way down f. 10v. The work's own chapter concordance assigns chapter 5 to ff. 11r–13r. The rubric is printed where it stands and the concordance is not adjusted to it; the same divergence recurs at f. 33v, where chapter 16 opens at L24 against a concordance placing it at ff. 34r–36r, and at f. 39v, where chapter 18 opens at L15 against a concordance placing it at ff. 40r–43r. A reader should treat the concordance as an editorial summary and the rubrics as the evidence.

22. batch_011 / f. 11r, wheel figure — *Category B — source compositor error*

The wheel on f. 11r carries eight rim compartments, each with a caption. The corresponding figure in NLI Ms. Heb. 28°9573 carries twelve compartments and no captions at all; the two share only the central caption. This is a structural divergence between the witnesses, not a defect in either, and nothing may be imported into this rim from NLI — twelve empty compartments are no witness to eight captioned ones. The second word of **רוחב** and the south-east rim label are among the loci on which the second witness was not decisive, and remain unread here.

23. batch_012 / f. 12v — *Category C — author/source anomaly*

The passage gives **כ"ג מעלות וכ"ה דקים** at one point and a second value of the form **[[ס"ו/פ"ו]] מעלות וכ"ה דקים**. On the first of the two candidates the pair would be complements in a right angle. That is precisely why the reading is not

confirmed: a value adopted because it makes the arithmetic close is an emendation presented as a transcription. The alternative is left standing beside it.

24. batch_012 / ff. 11v–13r, the clime series — *Category B* — *source compositor error*

The series of climes runs across ff. 11v–13r with both its columns — the elevation of the pole and the length of the longest day — failing to increase monotonically. The figures are printed as read and are not smoothed. The temptation to smooth them is exactly what is refused: the leaf at f. 12r states the rule that each clime adds half an hour to the longest day of its fellow, and that statement is recorded as a claim the text makes, never as a licence to fill or correct the unread members of the series. Where the leaves are unread, they are left unread.

25. batch_013 / f. 13r L2–L7 — *Category C* — *author/source anomaly*

The month-counts on these lines form a clean 2, 3, 4, 5 staircase. A regular arithmetical progression across a run of small numerals is the recognised signature of pattern-filling — the failure in which a reader supplies the value the sequence wants rather than the value on the page — and it is flagged here rather than relied on. The figures are printed as read, and a reader who needs them should have them re-checked sort by sort against the leaf.

26. batch_014 / f. 14r L15 — *Category C* — *author/source anomaly*

The count attached to Sagittarius reads ״ל[?]״, and the sort that would complete it is not resolved. One candidate, ן, would give ן״ל — a form invalid in gematria, which places the larger letter after the smaller. That is not treated as evidence that the sort must be something else: a manuscript may write an irregular form, and refusing a reading because it produces an invalid numeral would be reasoning from the numeral system rather than from the ink. The count is left open.

27. batch_014 / f. 14r L19–L22 — *Category B* — *source compositor error*

The ordinals numbering a list of figures do not run in sequence: א״ה stands before ׳הא, and ב״ה closes L21 and opens L22. The alternatives are that two or three lists are running and restarting, or that a line has been joined wrongly in transcription. Neither is chosen, and the ordinals are printed in the order in which they stand.

28. batch_014 / f. 14v L6–L7 — *Category B* — *source compositor error*

Two variant notes of the form (נ"ו ...) — *nusha aheret*, another reading — stand on these lines in the main hand and the same ink, inside the text block. They are the first in the work, and they establish that this copy was collated against another exemplar. Their content is not recovered. The form matters beyond these two lines, because it fixes what the codex's variant apparatus looks like: round-bracketed, black, body-size, within the measure. That is what allows the gold display rubric at f. 25r to be excluded as a variant siglum, and it is why two bare נ"ו groups at f. 21v, standing without round brackets in sexagesimal positions, are left ambiguous between the siglum and the numeral 51. A census of these notes on other openings returns zero repeatedly, so the two here stand alone so far as the work has been examined.

29. batch_015 / f. 15r, numeral 11 — *Category C — author/source anomaly*

At this locus the astronomical argument wants the value 11, and the reading נ"י is excluded on a measured letter-ceiling test. The edition prints no value. The coincidence between the expected figure and the refused reading is recorded rather than resolved: a number that the surrounding astronomy would supply is the number a reader is most likely to see, which is the reason for withholding it and not a reason for adopting it.

30. batch_015 / f. 15r, plate point-letters — *Category B — source compositor error*

This figure carries construction point-letters. Their presence was denied by one census, and three separate readers have since reported them; a count taken on the leaf gives twelve certain, in a range of twelve to fourteen. The names of the letters are withheld: no census of which letters stand at which points has been taken. One structural point travels with them and must not be lost — the point-letters carry no *gershayim*, no unit word, and no order that would make a quantity, so they are not values. On a leaf where every genuine figure in the prose is withheld, mistaking point-letters for numerals would manufacture a table out of a diagram.

31. batch_015 / f. 15v L18–L19 — *Category C — author/source anomaly*

The sequence ...נטייתם מ' מחלק ומעלות ... admits two parses. Read one way it gives eighteen degrees and a fraction, with 40 = מ' opening the next argument; read the other it gives eighteen degrees and forty minutes, with מ' part of the value. Either choice rewrites the table of values the passage builds, and the choice leaves no trace in an English rendering. The edition parses it the first way, on the evidence of a cycle elsewhere in which מחלק is absent and the one-sort *geresh*

figure keeps its slot — so ןמחלק closes the value and the figure that follows is the next argument. No figure is adopted at the locus. A reader who prefers the other parse should know that regularity across the run is the thing under test and cannot be used to settle it.

32. batch_015 / f. 15v L7 — Category C — author/source anomaly

This token cannot be resolved, and the limit is the hand — not the scan, and not the reader. A letter known independently to be כ and a letter known independently to be ב, both on this leaf and in this pen, score an intersection-over-union of 0.699 against each other: exactly the score the token's own two sorts return when compared with one another. The scribe does not make the distinction, so no magnification, no re-scan and no further reading can close it. The reading כ"ג is struck, and the value must never be rendered as 22 or 23. A separate point applies to the same token: an earlier [numeral: ?] tag is withdrawn, because numeral-hood was never established here. The group may be כ"ב = כל כ, a discourse particle, which reads perfectly in the clause; the tag asserted both that the token was a numeral and that its value was unknown, and only the second of those had been shown. Elsewhere on this leaf the frame words מעלות and גיעתם establish numeral-hood independently, which is precisely what L7 lacks.

33. batch_016 / f. 16v L4 — Category C — author/source anomaly

The four *tekufot* are enumerated here and the third name is not read. It is deliberately not completed from the pattern: a sequence of four seasons is among the most predictable runs in the literature, and supplying the missing member from the other three is filling by expectation rather than reading. The count ד' תקופות is the only value committed anywhere in this unit; seventeen further figure-slots on the opening are left open, with no sum taken, no value compared with another, and nothing checked against a received table.

34. batch_017 / f. 17v L18 — Category B — source compositor error

A word on this line has been cancelled by the scribe. It is the only intervention of any kind on the opening, and the cancelled word cannot be recovered. No reading is guessed at it. Recorded because a cancellation is a scribal act, and a fluent rendering passes over it in silence.

35. batch_018 / f. 18r, foliation — Category B — source compositor error

The foliation of this leaf is written ן' — the letters of *chai*, ן before ' — rather than the sequential ן'. The inversion is a deliberate euphemistic convention and

is not normalised. The same convention appears in the chapter numbering: chapter 18 is written ט"ח in the gold rubric at f. 39v L15, and chapter 17 is written ט"ז, spelling *tov*, in the running heads of ff. 36–38. In both cases the euphemistic form is a positive discriminator rather than a difficulty, because a reader following the sequence would have supplied the ordinary form. The codex numbers rectos only; a mark at a verso foliation position is show-through or offset from the recto until a density test says otherwise.

36. batch_018 / f. 18r, outer margin — *Missing-source lacuna*

Two lines in a hand other than the scribe's stand in the outer margin, level with the running header and not keyed to any line of the body. They are deliberately left untranscribed, for want of a control alphabet for the annotating hand. A modern archival pencil foliation 18 in Western numerals stands in the top outer corner of the same side; it is a post-medieval addition and is used to settle nothing about the manuscript's own foliation.

37. batch_019 / f. 19r L19, L27 and f. 19v L3, L5 — *Category C — author/source anomaly*

A word recurring four times across this opening reads ה[ד/ר]ומה, and the undecided sort falls in this hand's irreducible ד/ר pair. The consequence is not lexical detail: on one reading the passage names a sphere, on the other it says that one body resembles another. The class is printed open at all four occurrences, and no occurrence is settled from another.

38. batch_019 / f. 19r L22–L23 — *Category B — source compositor error*

The same phrase appears on two ruled lines 123 px apart. Whether this is the scribe's own repetition or a doubling introduced in reading is not resolved, and both occurrences are printed. The same undecided shape recurs at f. 21v L9–L10, f. 25v L8, f. 27v, f. 38r L16–L17 and f. 39v L7–L8; at f. 39v the two occurrences stand at different lines *and* different horizontal positions, so an artefact of overlapping image panels does not account for that one.

39. batch_019 / f. 19v L28 — *Category C — author/source anomaly*

The value 360 at this locus is supported by NLI Ms. Heb. 28°9573 and was read there cold, at 12×, on a left-limb test against a sense-fixed ס control. It is recorded as *supported by NLI*, never as re-measured in the Chester Beatty ink, and a reader citing it should cite it that way. The third value on the same line is expressly not filled. NLI reads וכל דק לשלשים שניות — thirty seconds to the minute, not sixty — spelled out in words and verified at 10×. That is a genuine variant, and it is

arithmetically wrong. Beatty's slot is unread, and neither 30 nor 60 may be supplied into it: a second witness that is wrong is still a witness, and it is not a source of corrections.

40. batch_020 / f. 20r L6 — Category C — author/source anomaly

The leaf reads ובלחות שהעתקנו מהר"ר [[ז/ר]]כות ז"ל — "and in the tables which we copied from our teacher the Rabbi, Rabbi [[Z]]akut, of blessed memory." The honorific מהר"ר is secure, and the ז"ל following it establishes that a named, deceased authority is meant. The name is four sorts, of which the second, third and fourth (ח, ו, כ) are unambiguous. The first is left alternating between ז and ר and is NOT closed on letterform: the ז of the following ז"ל is a same-line control and is compatible with it, but both letters are small and the contrast is not decisive at that size. What settles the reading is lexical rather than palaeographic — רכות is not a name and זכות is — supported by an independent second occurrence of זכות read sort by sort at f. 39v L1. The given name is not written here, so the identification with Abraham Zacut, whose astronomical tables were the standard Hebrew set, is the editors' and is not on the leaf. The statement bears on what this work is: the author's own table of contents (f. 1v) announces four discourses, of which the second concerns the making of the tables, the third the molads and tekufot, and the fourth how their fixings are known "from the tables that were written". A four-part work whose later parts are tabular is therefore the author's announced plan, and this line adds that the tables were taken from a predecessor rather than computed afresh. Beatty preserves only the first part, closing at f. 43r with ע"כ שער הראשון, and carries no cross-reference anywhere in its body to a second, third or fourth gate.

41. batch_020 / f. 20r, foliation practice — Category B — source compositor error

The codex foliates its rectos only, and its practice is not uniform. f. 20r is written with a final ר where a numeral would ordinarily take a medial כ; ff. 21r, 22r, 23r, 24r and 27r all take the medial form. Gershayim are present on some leaves and absent on others — f. 33r and f. 42r carry none, f. 41r does. At f. 39r the sorts are reversed, ט"ז rather than ז"ט. At f. 18r the euphemistic *chai* form is used. Several foliations are unresolved and are deliberately not settled from a leaf's position in the codex, which is precisely what may not settle them: f. 12r stands between 32 and 12, f. 15r between 15 and 16, and f. 16r as י plus an unread sort. All forms are recorded as written and none is normalised.

42. batch_020 / f. 20v — Category C — author/source anomaly

Two decisions on this side are recorded so that a later reader does not re-derive them. The correction term added to the year length is refused: 365 plus a correction is the most predictable quantity on the leaf, and a reading that supplies it is the reading expectation produces. The value 365 = שס"ה is settled at L5 on a counter whose area and position match a same-leaf ס, the same leaf's פ having no counter at all and a bridged one sitting elsewhere; it does not rest on the received constant. L10 is consistent with 365 and is expressly not settled, and must not be filled from L5. The fragility of the L5 reading is on record in its reader's own words — the counter is the entire evidence, and if the loop fills in the same group reads 385 = שפ"ה — in an ink documented to bridge and thicken rather than to open.

43. batch_020 / f. 20v L4, L7–L8, L10 — Category B — source compositor error

The passage records a מחלוקת — an express disagreement among the astronomers over the length of the solar year — and reports a second opinion with ולדעת אחרים. This is a variant the source itself carries, and both opinions are rendered. The figures attaching to them are largely withheld, since a year length is among the most predictable quantities in the literature and a reading that supplies the received value is the reading expectation produces.

44. batch_021 / f. 21r — Category B — source compositor error

The two eccentric circles of this figure are drawn in gold. Elsewhere in this codex gold marks rubrics and display words; here it is the material of the construction itself. Recorded as a divergence from the manuscript's own practice. Four of the figure's six labels are unread, and the sort counts of the unread labels do not match the words the facing prose would supply — which is a reason not to fill them from the prose.

45. batch_021 / f. 21r L24 and the plate — Category B — source compositor error

This leaf demonstrably carries both התני and התלי for the lunar dragon. The prose at L24 reads התני — five sorts, a baseline break of roughly 50 px, and no ascender in the ל band — while התלי is measured twice at L8. The plate's labels positively exclude ל and read תני at a point where the facing prose says התלי. The usage is therefore mixed within one paragraph, and any translation that normalises the two terms to one flattens a distinction the leaf makes. The edition prints both as written.

46. batch_021 / f. 21r, a recurring technical term — Category C — author/source anomaly

A term governing the argument of this opening reads נחש followed by a three-sort word, standing five times. The candidates are כהה and בריח or ברח, and they are two different words rather than two spellings of one, so the choice changes what the passage says. None of the five occurrences is settled, and none is settled from another.

47. batch_021 / f. 21r, outer head margin — *Missing-source lacuna*

A small round hole pierces the outer head margin of this leaf, clear of the written area. It is one of a series of perforations through the head margins of the later leaves — ff. 34, 35, 36, 37, 38, 39, 40, 41 and 43 all carry one or two, several confirmed as passing through the leaf by a mirror test between the two sides. None touches text. The consistency of their position suggests a feature of the paper stock or of the binding rather than damage to the written area. f. 41v also carries two modern transparent conservation strips over its outer edge, and f. 31 a translucent repair strip.

48. batch_021 / f. 21r, plate inner labels — *Category C — author/source anomaly*

Two inner crossing labels on this plate are candidates for ראש and זנב. The left-inner label is settled as זנב on its own letterforms, but is marked an adjudication rather than a witness, because it was read by someone who already knew the hypothesis. The right-inner label is three sorts and ראש is not adopted. The grounds for refusing are worth keeping: these are the prose's own words from the same leaf; this plate has already been caught not using the prose's vocabulary; and זנב = זניב has no ascender, no descender and no floating yod, making it the hardest three-sort word to establish in this hand. A separate apparent conflict resolves rather than standing: the census finding that the sort counts do not fit ראש/זנב is true of the outer labels, not the inner ones, and the two findings are about different labels.

49. batch_021 / f. 21v L17 and L25 — *Category C — author/source anomaly*

Two groups reading נ"א stand eight lines apart in parallel sexagesimal positions, without the round brackets that mark this codex's collation notes. They are therefore ambiguous between the numeral 51 and the siglum אחרת נוסחא, and neither is settled. The ambiguity is the same one that has to be excluded at f. 25r, where a gold display rubric reads נ"א פרק; there it is excluded on the ground that the variant apparatus of this codex is round-bracketed, black and body-size, whereas the rubric is in the gold display hand. Here neither test applies, and both readings stand.

50. batch_021 / f. 21v L18, the Dragon's period — *Category C — author/source anomaly*

The period of the lunar dragon reads 18 = נ"י. The reading is established on the leaf — the disputed sort shows two downstrokes under one roof, resolving into two ink runs with a gap of 14 to 21 px, exactly as the same line's נ of חדשים does, while the same word's י never splits. This matters because 18 is also what the astronomy would supply: the lunar nodes regress in about 18.6 years, that is, eighteen years and seven months, which is what the clause would otherwise be stating. The value stands on the ink and not on that expectation. The two remaining slots in the same clause stay empty: י"ח months is refused precisely because 7 completes the expected pair, and [[יז/ד]]"ג is recorded open.

51. batch_022 / f. 22, running headers — *Category B — source compositor error*

The running header on the recto reads פ"ט and on the verso פ"י; the verso figure was recovered by a second reading where the first pass had correctly withheld it rather than supplying it from the recto. Both are recorded as written. On this codex פ in a running head is פרק — chapter — and not the letter-value 80: the running heads carry the chapter series, and a rubric elsewhere in the second witness spells פרק out in full. The header therefore advances from chapter 9 to chapter 10 across this leaf.

52. batch_022 / f. 22r — *Category B — source compositor error*

f. 22r carries twenty-nine written lines against f. 22v's twenty-eight, each plus a catchword line. An apparent further line below L28 is recorded as a negative: it is show-through or offset registering as a cluster of ink, not writing on this side, and it is set down here so that it is not later taken for a lost line. Other sides in the codex are short for their own reasons and none of them is a lacuna — f. 34v carries fourteen written lines because two drawings occupy the rest of the side, f. 38r twenty because a plate occupies the middle of it, and f. 43r twenty-seven on a whole leaf with clean blank paper at the foot. The scribe habitually stops writing five to seven line-heights above the ruled foot throughout the codex.

53. batch_022 / f. 22r L5–L7 — *Category B — source compositor error*

The computation on these lines does not close: on the minuend as read, the subtraction cannot yield the remainder the text states. The passage is transcribed as it stands and is not emended. Two accounts are available and neither is chosen — an error in the source's own arithmetic, or a misreading of one of the numerals — and the arithmetic is expressly not used to settle any sort, since a

value adopted because it makes the sum come out is an emendation presented as a transcription. A comparable non-closure stands at f. 39r L6–L7, where fifty minutes is equated with about two hours.

54. batch_022 / f. 22r and f. 22v, head and foot bands — *Category B* — *source compositor error*

A red band appears at the head and foot of these leaves and is not rubrication: it is the coloured edge of the book block, seen at an angle in the photograph. The same band recurs through the codex. Recorded because it is a natural misreading of the manuscript's decoration, and because it must not be counted among the codex's genuine rubrications, which are red display bands within the measure.

55. batch_022 / f. 22r, arc label — *Category B* — *source compositor error*

An arc label reading עובי גלגל — the thickness of the sphere — is established on this plate and added to the label census; it is the only ceiling claim in its group that clears this codex's ל band, measuring 1.8–2.0× the x-height. The proposed completion אב/הב is refused on size. The refused half is the consequential one: אב would have licensed reading the plate's א·ב·ג·ד as the endpoints of a measured thickness, which is exactly what the facing prose argues, and a hypothesis surviving only on the sorts that could not be read is not a reading.

56. batch_022 / f. 22r, plate centre label — *Category C* — *author/source anomaly*

The centre label of this plate is unresolvable, and the edition prints it so. Two negative results narrow it without inventing anything: the middle word ends in ן, which refutes האופק, and the third word has three sorts, which refutes both הארץ and לחוץ. An apparent ceiling break in the first word is real but measures 1.28× the x-height, below this codex's own ל band of 1.56–2.35×, so it does not carry a ל. The earlier הארץ is withdrawn to an unread mark. This locus is also the clearest demonstration on the leaf of the hazard the edition guards against: מזרח is the word the sense demands — the verso writes קו האופק המזרחי twice — and the baseline rule forbids it, so a reader working from context writes מזרח and nothing downstream emits a signal.

57. batch_022 / f. 22v L24–L28 — *Category B* — *source compositor error*

The ordinals numbering the quadrants on this side do not run cleanly: כיון הב' at L24, הרביע הג' at L25, and at L27 an ordinal unsettled between ג' and ד'. They are printed as they stand and are not normalised to a sequence. Separately, L28 reads מ'זע' immediately followed by מול: the sense wants signs and the sorts read degrees. Both are recorded and neither is settled.

58. batch_022 / f. 22v, marginal gloss — *Missing-source lacuna*

This side carries a marginal gloss in a hand other than the book hand — three lines, crisply written — and it is not transcribed. The reason is the absence of a control alphabet for the gloss hand, not the state of the ink. Fourteen of the codex's eighty-eight sides carry a gloss; the halo measurement separates all fourteen from the book hand with no overlap (body 14.5–35.3 against gloss 1.4–7.0), and one hand suffices for twelve of the fourteen. The gloss layer of this manuscript is recorded as a floor, not a catalogue: sixty-three sides are positively clean, but nine are silent rather than clean, because only a narrow outer-margin strip was ever examined on them.

59. batch_023 / f. 23r and f. 23v, paper — *Category B — source compositor error*

A watermark is visible in these leaves: a pale grey hooked stroke in the outer margin of f. 23r and a grey diagonal on f. 23v, both in the paper rather than in ink. Comparable marks are recorded at ff. 24r, 27r and 28r, in near-identical positions, which is consistent with a single stock. No identification of the mark is attempted here, and none should be made from these images; the note exists so that a codicologist knows the watermark is there to be looked for.

60. batch_023 / f. 23v — *Category B — source compositor error*

The work uses both חמה and השמש for the sun, the first earlier and the second from f. 23v; both stand within eight lines of one another at f. 27v. They are kept as separate lemmas and are not conflated. Whether the variation is authorial, scribal or without significance is not decided; the point of recording it is that a translation which renders both simply as *the sun* erases a distinction the source makes, and the question should be ruled once for the whole work rather than leaf by leaf. The same problem stands for the moon, where f. 34v uses לבנה and ירח within the same sentences.

61. batch_023 / f. 23v, daily-course figures — *Category C — author/source anomaly*

Two daily-course figures on one line do not agree, and the discrepancy is not harmonised. The disagreement is partly an artefact of the reading rather than of the leaf: the same sort reads ג on one image panel and ג on another, and the minutes figure beside it is separately unsettled. Both readings are preserved and neither is adopted. A sort whose identity changes with the crop has not been read, and no value resting on one is committed.

62. batch_024 / f. 24r L7 — *Category B — source compositor error*

The word **רום** is written small above the line, inserted over the gap between **בוק'** and **הם**. Nothing beneath it is cancelled, so this is an addition and not a correction of something written wrongly. A second interlinear addition in the scribe's own hand stands above f. 33v L17. Both are scribal acts, and both are recorded because a fluent rendering absorbs an interlinear word into the line and leaves no trace of the insertion.

63. batch_024 / f. 24r and passim, internal chapter cross-references —
Category C — author/source anomaly

This work cites its own chapters constantly, in the forms **כפ'...בפ'...** and **כנ' בפ'...**, and the great majority of those numerals are not read. At least eleven stand unresolved across ff. 5–10v alone; further unresolved instances stand at ff. 19r, 23r, 23v, 24r (three or four on one side), 25v, 26r, 27v, 28r, 28v, 29r, 32r (three), 36v (four), 37r and 40. In most cases the undecided sort falls in this hand's **ב/ג** or **ד/ר** pairs, so the citation's target is ambiguous by one chapter; in several the direction of the reference, backward or forward, is also undeterminable. None is filled from the sequence of chapters, because the sequence is exactly what may not settle it. A reader should treat the work's internal cross-references as an open class rather than as citations that have been checked. The class is worth a dedicated pass: the frame **כי ב ___ נת' כבר** can only be filled by a chapter, and the sort-count rule for this codex — **פ** plus a two-letter numeral is **פרק**, plus a single letter is a value — settles the form even where it does not settle the number.

64. batch_025 / f. 25r and f. 25v, marginal glosses — *Missing-source lacuna*

f. 25r carries a gloss of fourteen lines in the outer margin — the largest in the codex — and f. 25v a short one of two or three lines at the foot of its outer margin. Neither is transcribed, for want of a control alphabet for the annotating hand. The gloss layer of this codex is measured as a floor and not as a catalogue: fourteen of eighty-eight sides carry a gloss, sixty-three are positively clean, and nine are silent rather than clean because only a narrow margin strip was examined on them. A single hand accounts for twelve of the fourteen, on a halo measurement that separates every gloss from the book hand with no overlap; more than one hand is demonstrated nowhere.

65. batch_025 / f. 25r, gold display rubric — *Category C — author/source anomaly*

The gold display rubric on this leaf reads **פרק נ"א** — chapter 51 — in a chapter series that stands at 12 at the answering leaf of NLI Ms. Heb. 28°9573 and runs 14

to 18 across ff. 30v–44r of this codex. The number is impossible in that series, and the edition does not resolve it. It is not the variant siglum $\aleph = \aleph''$: this codex's variant apparatus is round-bracketed, black, and body-size, whereas this stands in the gold display hand. The second witness cannot rescue it, and was not able to: both 11 and 12 require a $\aleph$, which is excluded here on a baseline measurement, and the answering NLI leaf was not located, so no collation is claimed at this point. Three hypotheses stand, each with its test recorded, and none is chosen. The reading is printed as it stands.

66. batch_025 / f. 25v L8 — *Category B* — *source compositor error*

The phrase והחלוק הקטן stands twice inside a single line. It is transcribed twice and not normalised. A repetition within one ruled line cannot be an artefact of overlapping image panels, which is why this instance is stronger than the several cross-line repetitions recorded elsewhere in the codex; whether the scribe wrote it twice or was copying from an exemplar that did is not decided.

67. batch_026 / f. 26r L1 — *Category C* — *author/source anomaly*

The inclination figure at the opening of this leaf was open on both passes and open in the same way, which is recorded here so that the agreement is not later mistaken for a settlement. Adjudication on the leaf refutes both 21 and 51 — $\aleph$ and $\aleph'$ are excluded on measurement — leaving the group as $\llbracket \aleph/\aleph' \rrbracket$ with its second sort one of $\aleph$ or $\aleph'$. No value is adopted.

68. batch_026 / f. 26r catchword and f. 26v first word — *Category C* — *author/source anomaly*

The catchword at the foot of f. 26r and the first word of f. 26v are the same word, and the two passes disagree on how many sorts it has. Measurement on the leaf gives two sorts — $\llbracket \aleph/\aleph' \rrbracket$ followed by a word-final $\aleph$ — at both loci, matching sort for sort, with no $\aleph$ between them. The committed reading תן is therefore unavailable and the $\aleph$ must not be restored. No word is adopted in its place. Neither of the codex's two component-wise catchword re-checks covers this leaf; the check is mechanical and has not been run.

69. batch_026 / f. 26v — *Category B* — *source compositor error*

The passage reads $\text{עב מצד דרומו ודק מצד צפון}$ — thick on its southern side, thin on its northern — with מצד standing six times on the leaf. The $\aleph$ is confirmed against the same leaf's כמצויר , and the reading was measured independently at 4.3× at all six occurrences. It is recorded here because the alternative that had stood is

ungrammatical without it: מצד supplies the preposition the clause requires. The superseded wording is preserved verbatim in the working files.

70. batch_026 / f. 26v and f. 27v, outer head margins — *Category B* — *source compositor error*

A roughly square brown mark, about 80 by 100 px, with a defined left edge and a diffuse right one, stands in the outer head margin of f. 26v; a roughly triangular brown mark of about 130 by 170 px stands at effectively the same position on f. 27v. Neither is a gloss and neither is show-through. The coincidence of position on consecutive leaves is recorded without a claim; a comparable brown cruciform mark stands in the head margin of f. 33v and a cross-shaped one at f. 36v.

71. batch_026 / f. 26v, plate — *Category B* — *source compositor error*

The innermost drawn circle of this figure is an opaque blue stroke of even width — a drawn element of the construction, in a colour that an earlier account of this codex records as unattested. Separately, one compartment of the annulus is read תחתנים on one image panel and מאזנים on another, with תאומים also available; the conflict is reported rather than resolved, and the panel names are kept in the apparatus because they are what distinguishes the two readings of one label. Nothing is chosen.

72. batch_027 / f. 27v — *Category B* — *source compositor error*

The passage reports the opinion of sages who held that the sun has no small epicyclic sphere, and therefore no apogee at all. The dissent is the source's own and is rendered as such. This manuscript reports doctrinal disagreement in several places — over whether the apogees move at all (f. 28v), over the length of the solar year (f. 20v), and over whether the earth's shadow tapers to a point (f. 37) — and in each case the edition renders both opinions without preferring either.

73. batch_027 / f. 27v L25 — *Category B* — *source compositor error*

The text opens a construction and names its points by letter, and no figure carrying those letters stands on this opening. The reference is left as it is; no figure is supplied and none is sought elsewhere in the codex on the strength of the letters alone. Comparable mismatches between text and figure stand at f. 36, where the prose argues from lettered points and cites a figure of a serpent and a dragon *as stated above* with no such figure on the leaf, and at f. 38r L11, where

the prose speaks of the sun at the head of the Teli while the plate on that same side is labelled only for the tail.

74. batch_028 / f. 28r L16–L17 — Category C — author/source anomaly

The same sort stands at L16 and at L17, ץס/פ60 — ′ or 80 — and the value is withheld at both. The discriminator offered is a closed ring with a leftward base, against this hand's פ at two same-leaf loci, which leaves its inner stroke open; that favours ס and is not committed. The constraint is what matters to a reader: a value adopted at one line must be the same at the other, so any account that leaves L16 blank while reading L17 as 2 or 20 cannot stand as it is. One probe covering both lines would settle the letter class and the constraint together.

75. batch_028 / f. 28r L25 — Category B — source compositor error

A gold chapter rubric opens at f. 28r L25, and the running head of this side is the fifth in succession to read the same chapter. Elsewhere in the codex the head advances one side after the rubric; here it does not advance at all. The break in the codex's own habit is recorded and not repaired. The numeral of the rubric itself is unread — פרק י״ג/ב, with ד not excluded — so the chapter division is secure and the chapter number is not, and it is deliberately not supplied from the head, from the concordance, or from the sequence.

76. batch_028 / f. 28r L27 against f. 28v L2 and the plate — Category B — source compositor error

f. 28r L27 reads ץב/ג ′ קוים שלו — two or three of its lines — and f. 28v L2 says two, while the plate on the same side carries a count of its own. The three are reported and are not reconciled. This is a conflict between the source's prose and the source's own figure, and reconciling it would require choosing which of them is right, which this edition does not do on this evidence.

77. batch_028 / f. 28r, plate — Category B — source compositor error

This plate is drawn in three colours — gold for the outermost circle, red-orange for the middle, blue for the innermost — which rules out any single-palette assumption for this codex's figures. Any monochrome reduction of the figure destroys the distinction between its three circles. The point applies with more force at the eclipse plate on f. 38r, where the blue encodes eclipse magnitude.

78. batch_028 / f. 28v — Category B — source compositor error

כשיעור תנועתו occurs eight times on this side and בכל פאתיו seven. The repetition is not a defect of transmission and not a duplication introduced in

transcription: it is the author's per-planet template, restated for each body in turn. Recorded so that a normalising pass does not thin it out.

79. batch_028 / f. 28v L16 — *Category B — source compositor error*

A word in the body of this line is enclosed in a drawn box. It is the first framed word recorded in the codex. What the frame means — emphasis, a quoted lemma, a marked correction — is not decided, and the word is rendered without any typographic distinction. Two comparable presence-layer marks are recorded on f. 38: two words on the recto enclosed in a drawn curve in the text ink, and a word on the verso written noticeably larger and heavier in the shape of a section opening.

80. batch_028 / f. 28v L4–L5, the precession rates — *Category C — author/source anomaly*

This passage states rates for the precessional motion, and the values are not written into the edition. The locus was called the single highest-risk one on the side, and the reason is that the received figures — a complete revolution in 36,000 years, and one degree in 100 years — are exactly what training and the passage's own arithmetic would supply. A cold reading reports two different sorts at the two lines, 7 at L4 with a descender plainly present and ν at L5 with a bowl plainly on the baseline, and states that neither was adjusted to agree with the other; on that reading the two lines give rates for different motions. The rates as they stand do not cohere with one another, and the edition does not make them cohere. A reader should treat any harmonised set of precession figures here as an emendation presented as a transcription. One further caveat is carried from the same reader: the ν of ν מעלה is formally $\llbracket \nu/\nu \rrbracket$ and was decided by the singular noun and by the arithmetic, not by letterform.

81. batch_028 / f. 28v L6 — *Category C — author/source anomaly*

The phrase תמונה בעל $\llbracket \eta \rrbracket$ stands here and may name a work or its author — *the author of the Tsurah* — but it is not entered in the glossary of works or of persons and is not identified. The reason is the one that governs the whole authority census of this manuscript: an identification that fits the context perfectly is the identification a reader supplies rather than reads, and this codex has been shown to name almost nobody. The phrase is rendered literally and the question left open.

82. batch_029 / f. 29r L7, L14, L17 — *Category C — author/source anomaly*

The group א"י stands twice on this side as the doxographical formula *and some say*, and apparently twice as the numeral 11. The two functions are not separated by anything on the page, and no rule is offered here that would separate them across the work. Where the frame does not decide it, the group is left as it stands. This belongs to a wider pattern on this codex: a two-sort group under gershayim is more often a fixed abbreviation than a gematria — כנ"ל, וע"כ, אע"פ, הנ"ל, — כ"כ, ר"ל all occur — so numeral-hood must be established from a unit word beside the group, not from the marks above it.

83. batch_029 / f. 29r and f. 29v — Category B — source compositor error

חלקים is used in three incompatible senses across this one opening: parts of arc on the recto, calendrical *ḥalakim* — 1080ths of an hour — at f. 29v L5, and a ratio of bulk against the globe of the earth later on the same side. The work's own glossary lemma, established from the opening batch, does not govern any of the three automatically, and it was not applied. The same divergence stands at f. 24v, where the word is used half a dozen times as a linear or angular measure, and at f. 27v, and it remains undecided at f. 39v L4 where the governing numeral is unread. Each occurrence must be construed from its own frame; a reader should not assume a single unit behind the word.

84. batch_030 / f. 30, palettes — Category B — source compositor error

The three drawings on this opening are executed in three different colour schemes — one in gold alone, one in red-orange and blue, one in gold and blue. Taken with the blue construction circle at f. 26v, the three-colour plate at f. 28r, the red construction circle at f. 9v and the two differently coloured drawings on f. 34v, this establishes that the codex's figures have no single palette and that colour in them is a drawn element rather than decoration. No illustrated output of this work should be produced through a monochrome reduction.

85. batch_030 / f. 30r — Category B — source compositor error

The scribe writes ככב for the star, without the י. A normalising edition would silently supply it. The defective spelling is preserved as a feature of this copyist's orthography.

86. batch_030 / f. 30r L27 and the same line — Category C — author/source anomaly

Two decisions on one line pull in opposite directions and both are deliberate. ס"ט 360 = is settled on a lower-left exit spur discriminator built on this leaf — the final ן at two loci shows no exit stroke, the ס shows a spur, and the disputed sort

shows the same spur, verified continuous with the loop and not an ascender from the line below. Two limits travel with it: the square-script running head is worthless as a control for a cursive body hand and was not used, and the sample is two ם against two ס, so it is provisional and must not be carried to another hand. On the same line '[[ג/ד]]ל is withheld, in the reader's own words: context makes 4 all but certain, which is exactly why it was not written, because resolving the sort on the ground that 4 completes the canonical 4/12/360 division is publishing an emendation as a witness.

87. batch_030 / f. 30r, the two recto drawings — *Category B — source compositor error*

The recto carries two distinct figures, and a census that records one has merged them. They share no pigment, no construction line and no frame: one is a red and blue ring figure with no lettering at all, the other an ochre and gold wheel with black labels. The two were independently measured as disjoint. Recorded so that a later normalising pass does not re-merge them.

88. batch_030 / f. 30v L16 and L20 — *Category C — author/source anomaly*

At these two loci one reading gives a numeral and the other the adverb כל = כ"כ כך, so much. The direction of the risk is worth stating: the non-numeric reading is the smoother one, so if it is wrong a value has been converted into an adverb with no flag anywhere downstream. Adjudication on the leaf refutes both prior readings on the final sort, leaving the group as [[ק]]ה'[[כ/ב]]. The value is withheld, and 125 is named as the figure the arithmetic would supply — which is the reason to refuse it here rather than a reason to write it. A related refusal stands one leaf group away, at f. 42, where [[ג/ק]]ב' was refused on the express ground that 102 is the only number that works; the two are the same sort class and should be probed together and settled from each other in neither direction.

89. batch_031 / f. 31r L25 and L27 — *Category C — author/source anomaly*

At L25 the group reads 82 = פ"ב on one account, and is not adopted. The competing discriminator offered addresses the pair כ/ב, whereas the open pair here is ג/ב, so 83 = פ"ג remains untested by either reader. The two passes' surrounding text also differs, so the context that would license the claim that a number is required is itself in dispute; any crop taken must cover the line end. At L27 the group is narrowed to 23 ,22 = [[ד/ג/ב]]ל"כ or 24 and withheld, with the trap named at the locus: 23 is what a reader who knows the obliquity of the ecliptic will want, and that is the reason to refuse it.

90. batch_031 / f. 31r L28 — Category C — author/source anomaly

The text states a maximum, תכלית השינוי — the extreme of the variation — and the value is refused. The ground is that a stated extreme in this literature is among the most predictable quantities on a page, so a reading that produces the received figure is the reading expectation produces. The slot is left empty. Two further refusals stand on the same side, at L27, where a degree value is withheld because the expected figure would be supplied from knowledge rather than from ink, and at L25 and L27 where the numerals are left as open classes.

91. batch_031 / f. 31r L4 and f. 31v L1 against f. 31v L14 — Category B — source compositor error

This opening counts the planets as seven at f. 31r L4 and f. 31v L1, and as six at f. 31v L14. The figures are printed as they stand and are not reconciled. Whether the smaller count excludes one body deliberately — the sun and moon are counted variously in this literature — or whether one of the two numerals is misread, is not decided here.

92. batch_031 / f. 31v, foot — Category B — source compositor error

No catchword is found at the foot of f. 31v, and the plate on that side occupies the place where one would stand. In a codex that carries catchwords under both sides of a leaf this is an exception, and it is recorded as an observation about this side rather than as a claim that a catchword has been lost. The catchword at the foot of f. 31r was separately not confirmed against the first word of f. 31v.

93. batch_032 / f. 32, chapter numerals — Category B — source compositor error

This opening carries three chapter numerals in three places: the recto running head, a gold rubric four lines below it, and the verso running head. They do not agree. The gold rubric is settled as 15 = פרק ט"ו on its own sorts; the two running heads are not settled by it and stand as written. The disagreement is a feature of the copy's layout — a head names the chapter that was running when its side began — but it is not used to fill either head, and the undecided sort in the head numerals falls in this hand's ד/ר pair, which is unresolved on five consecutive sides.

94. batch_032 / f. 32r L7 — Category B — source compositor error

The Chester Beatty codex runs: third, מהלך מעגול השמש; fourth, מנת מ' (עגול/סלול); fifth, מהלך האמיתי. NLI Ms. Heb. 28°9573 runs the third straight into הד' מהלך with nothing between. This is reported as a divergence between the

witnesses and not settled. The alternative hypothesis is live and is stated against the variant's own interest: the two copies may be *placing* מנת מסלול differently rather than one of them carrying more text — which would collapse the two supporting observations into a single fact and remove the independence the variant rests on. A reader should not cite this as a case of one witness carrying a member of the series that the other lacks.

95. batch_032 / f. 32r L7, the numeral — *Category C — author/source anomaly*

The numeral reads ׳[[ג/ד/ז/נ]]7 and is open across 103, 104, 107 and 150. Two candidates are excluded: 130 on measurement, showing neither a ceiling break nor a descender, and a reading opening in ך on the arithmetic. No value is adopted. The line itself was recovered from an earlier state in which it was recorded as no witness at all, and the step that recovered it was going *down* in magnification rather than up — the earlier reader was short of context, not of resolution.

96. batch_032 / f. 32r, gold display rubric — *Category B — source compositor error*

The gold display rubric reads פרק ט״ו — chapter 15 — settled sort by sort before either running head on the opening was consulted, with 16 = ט״ז refused at 7× because the second glyph's head-bar extends left of the stem only, which is a ן hook. It is a reading of this codex's own ink, and therefore a different kind of evidence from the corresponding הפרק הט״ו in NLI Ms. Heb. 28°9573. The two running-header numerals on this opening are not settled by it and stand as written. A related chapter-numbering question is left open: NLI puts chapter 15 at its f. 33v and chapter 16 at its f. 36r, while this codex's gilt 15 stands at f. 32r and its פט״ז heads ff. 35 and 36. Both witnesses agree that 15 precedes 16 with a gap of about three leaves, so NLI does not obviously contradict this codex, but the locus was not worked directly and no clarity is claimed.

97. batch_032 / f. 32r, motion terms — *Category B — source compositor error*

מעגול stands five times on the recto and מסלול four times on the verso, and the two are carried as separate entries rather than merged. They are not obviously two spellings of one word, and treating them as one would be a claim about the astronomy and not a decision about orthography. At f. 32r L7 the same alternation stands inside a single term, מנת מסלול/עגול, and that occurrence is settled while the four remaining מעגול occurrences are deliberately not harmonised from it.

98. batch_032 / f. 32v L25 — Category C — author/source anomaly

The group at this locus reads םחלקי ןל"ן. With gershayim it is the numeral 31; without them it is the negative particle, and the clause says the opposite of what it says on the other reading. Nothing on the page decides it, and neither reading is adopted. This is the sharpest instance in the work of a general hazard: on this codex a mark above a two-sort group determines whether the group is a value at all, and the mark is not always separable from a neighbouring line's descender.

99. batch_033 / f. 33r L6 — Category C — author/source anomaly

The numerals כ"ב ב' י"ח stand together on this line. They are transcribed as they stand and their construal is refused: what the three values are of, and in what units, is not established from the passage, and supplying a sexagesimal reading that makes them cohere would be an interpretation presented as a transcription. Elsewhere on the same leaf 180 = ףק"ן is withheld at three loci precisely because the neighbouring חצי הגלגל, half the sphere, supplies the value.

100. batch_033 / f. 33r L9 — Category C — author/source anomaly

Two values on this line are left empty, and the reason must be stated carefully because an earlier reason has been withdrawn. It had been claimed that a matched-magnification control on this line refused 360 and 365 together, the word-final round sort being closed with a counter and the medial one open. That control was cut on the wrong glyph — the box falls on the word's final ה, not on the medial round sort, and the reader's own positional label contradicts his coordinates. Re-cut at matched 9×, both round sorts are closed with counters, so they do not differ and nothing is refused by them. The claim that the ink refuses 360-and-365 must not be cited. Both values nonetheless stay empty: the withholding is right and rests on the original ground, which is that 360, 365¼ and the solar figure are constants held from outside the manuscript, so a reading that produces them is the reading expectation produces. Twenty of the twenty-one numerals on this leaf are withheld for the same reason.

101. batch_033 / f. 33v L17 — Category B — source compositor error

An addition in the scribe's own hand stands above L17, written between the lines. Separately, the outer margin of the same side carries an annotation in olive or olive-khaki ink, in a hand other than the scribe's; it is recorded and not read. Neither had been listed in the codex's census of interventions, which is a reminder that the census records what has been examined rather than what is present.

102. batch_034 / f. 34, the moon — *Category B — source compositor error*

Both לבנה and ירח are used for the moon on this leaf, within the same sentences. The variation is preserved and not normalised to one term. As with the two words for the sun, whether the alternation is significant is not decided; what is recorded is that the source makes it.

103. batch_034 / f. 34v, the two drawings — *Category B — source compositor error*

The two constructions on this side letter their points independently, each starting from א, with the apex letters on opposite sides. The leaf therefore carries two points lettered ב and two lettered ג, belonging to different figures. This must not be reconciled into one series. The two drawings also use different palettes, one carrying blue washes and the other none — the fifth distinct palette combination recorded in the codex.

104. batch_034 / f. 34v, the two figures — *Category B — source compositor error*

The two drawings stand on the verso, not the recto, and the gap between them holds two isolated construction letters — a ג outside the right figure's west limb and a ט inside it. The right-hand figure carries four rim letters and the left-hand figure three; the missing south letter on the second figure is not on the leaf. A second observation about the same figures is recorded and not acted on: the four moon-circles are not shaded alike. Three are shaded in the lower half, the east one is divided by a tilted diameter and shaded on its east side, and the sun-circle carries no blue at all. A figure-wide description of the form half blue below would therefore be false of the one circle the diagram exists to show. This should be checked before any illustrated output is produced.

105. batch_035 / f. 35r L8 and f. 35v L9 — *Category B — source compositor error*

עד at f. 35r L8 and ועתה at f. 35v L9 are written enlarged, in the body ink, opening their paragraphs — and neither is gilded, where the codex's one previously recorded display word of this kind was in gold. Recorded as a scribal feature: the manuscript marks a new argument by size as well as by colour, and a rendering that flattens both leaves the reader without the structure.

106. batch_035 / f. 35r, blue pigment — *Category B — source compositor error*

Three rings on this figure are picked out in blue, and two independent readers each concluded, working from this plate alone, that a later hand in modern ink had circled them. Both were wrong, and it took a second plate to show it: the

same blue fills the eclipsed moons on the plate at f. 38r, where it is unmistakably original and load-bearing, being bounded exactly by the drawn tangent lines, and the hue ratios are identical — R/B 0.617 against 0.630, G/B 0.791 in both — with only the density differing. The blue is the manuscript's own, and the rings are the artist's emphasis on the three positions of the sun. A related caution about the same figure: its fanning lines do not close, so nothing there is a triangle.

107. batch_035 / f. 35r, plate caption — *Category B — source compositor error*

The caption reads גלגל יוצא מרכז — an eccentric sphere — while the two large circles it stands over are concentric to within 8 px, one per cent, and the small circle's centre rides on the middle one. What is drawn is an epicycle on a deferent. The contradiction is recorded and must not be published as a scribal error, because four alternatives are untested: the caption may be misread, only גלגל יוצא and מרכז being secure and the rest blocked by the [ד/ר/כ] ceiling; it may belong to the running text rather than to the figure; the drawing may be schematic; or the text may genuinely use the term in this way. One point sharpens the anomaly rather than explaining it — this artist draws true eccentrics accurately elsewhere, two figures in this codex being precise two-centre eccentrics in which the small circle's radius equals the separation of the centres.

108. batch_036 / f. 36r L22 — *Category C — author/source anomaly*

The closing result of this chapter has the form [figure] חלקים, and the figure is not supplied. 793 = תשצ"ג is the canonical number of *halakim* in the mean lunar month, in a chapter on the conjunction, standing in the chapter's own closing result slot — and it is refused precisely because it fits perfectly. Also refused at the same slot: 204 = ר"ד, 45 = מ"ה, and the non-numeral reading מעלה. The edition commits nothing here; the refusal is recorded at the locus so that the slot is not quietly filled later. A second reader never reached this line, so silence there is absence of coverage and not agreement.

109. batch_036 / f. 36r catchword — *Category C — author/source anomaly*

The catchword at the foot of f. 36r and the first word of f. 36v give three connected components each, agreeing component for component in width, height and ink area. Sort 3 measures about a quarter of the linear size of a body sort, which no ב or ק at body scale can be; it is a י, a tick at mid-height within the body band. The reading that had been committed is therefore unavailable, and sort 2 is reopened as [ל/א]. Sort 1 is narrowed to ח or ת and remains unresolved. Words refused by name include תלי and דלי — both fit the measurements, and both are

conspicuously apt for a chapter on the lunar conjunction, which is the reason to withhold them rather than a reason to write one. An earlier cross-check that was recorded as passing at this leaf turn had in fact passed on a different word: two loci, two magnifications, one confident wrong reading ratified by its own repetition.

110. batch_036 / f. 36r, line count and section break — *Category B* — *source compositor error*

This side is twenty-eight lines, written on a non-uniform grid, and the short centred chapter-closing line at L22 is easily lost. The section break falls at L23, not at the foot of the side. Three independent loci agree on the chapter numbering across the leaf: the recto running head gives chapter 16, the rubric opens chapter 17, and the verso running head gives chapter 17. Recorded because a line count taken from an ink profile returns twenty-seven here and silently drops the short line, and because word gaps on this leaf run 1–11 px and are indistinguishable from letter gaps.

111. batch_036 / f. 36v — *Category B* — *source compositor error*

Short dark horizontal strokes stand beneath individual words on this side, applied selectively — beneath ללל at the head of a sphere-name, and once beneath נא. Whether this is scribal underlining, a later reader's marking, or something else is not decided, and no typographic distinction is carried into the text. It is recorded because a mark under a word is a deliberate act and a fluent rendering passes over it.

112. batch_036 / f. 36v L22 — *Category B* — *source compositor error*

This line reads as a statement that no dragon or Teli exists as such, the name standing for a geometrical construction rather than a body. That is a doctrinally notable position on the lunar nodes and it is rendered as it stands. The reading of the line is not fully secure — parts of it stand in classes this hand does not separate — and a reader intending to cite the work's position on the nodes should have the line re-established sort by sort before doing so.

113. batch_037 / f. 36v catchword against f. 37r — *Category B* — *source compositor error*

On the readings taken, the catchword at the foot of f. 36v and the first word of f. 37r do not match. The mismatch is recorded rather than repaired, and it should be read against a measured finding about this codex: a catchword check on a short word cannot discriminate. Measured false-match ceilings on this

manuscript run 0.42 to 0.49 for catchwords of four to ten sorts but rise to 0.72 for a catchword of two, so a verdict on a short catchword is close to worthless in either direction, and every check should report the sort count beside its verdict. A related warning applies to this leaf's neighbours: agreement between a catchword and a first word is not independent corroboration when the same reader read both, and one such check on f. 36 passed on a confident wrong reading ratified by its own repetition.

114. batch_037 / f. 37 — *Category B — source compositor error*

The passage reports that חכמי התכונה divide over the length of the earth's shadow, one party holding that it tapers and is cut off at a finite distance. The disagreement is the source's own and both positions are rendered. It is worth noting beside the other reported disputes in the work — over the year length at f. 20v, over the sun's epicycle at f. 27v, and over whether the apogees move at f. 28v — because together they show a text that reports controversy rather than one that states a single system.

115. batch_037 / f. 37v L9 and L14 — *Category B* — *source compositor error*

At these two loci the number 16 is written [טז] in a form that ordinary Hebrew usage avoids, the conventional spelling being ט"ז for reasons of piety. The form is recorded as written and not corrected. It belongs beside this codex's other numeral conventions — the euphemistic י"ח for 18 and כ"ז for 17 — as evidence that the scribe's numeral practice is deliberate and various rather than uniform.

116. batch_038 / f. 38, line-fillers — *Category B* — *source compositor error*

Eight short horizontal dashes stand at line ends on this leaf, at f. 38r L7, L16, L17 and L20 and at f. 38v L1, L2, L3 and L26, the one at f. 38v L3 markedly longer than the others. They are line-fillers used to justify the measure, and they are a habit of this scribe attested from f. 22 onward; they are neither punctuation nor a maqaf, and they must not be read as either. A raised punctus is used in the same position on some leaves. An elongated final ʾ serves the same purpose at f. 32r L18–L20, where at natural size it reads as an unexplained large mark in the margin.

117. batch_038 / f. 38, scribal marks — *Category B* — *source compositor error*

Two presence-layer features are reported on this leaf and are not adopted, each resting on a single unverified observation. First, two words on recto L13 and L17 are enclosed in a drawn curve executed in the text ink — whatever it is, deletion, insertion or parenthesis, it is a scribal act, and a fluent reading passes over it in

silence. Second, a word on the verso, immediately after a long line-filler closes the preceding line, is written noticeably larger and heavier than its neighbours, in the shape of a section opening; the reader could not read it. An unread possible section opening is a structural claim and must be checked rather than adopted. Their absence from the edition's record is not evidence that they are not on the leaf.

118. batch_038 / f. 38r L9 — Category B — source compositor error

This line writes the numeral with the letter yod spelled out, 10 = ט"י, where the preceding leaf commits 14 = ט"ו twice in what reads as the same computation. The difference is one sort and it changes the value. Both are printed as read and neither is emended from the other. A reader should note that the spelled-out form is itself the stronger evidence of the two, being longer and less liable to the swallowed-yod failure documented on this hand, in which a short י under gershayim vanishes below about four times magnification.

119. batch_038 / f. 38r catchword — Category C — author/source anomaly

The catchword at this foot is settled as ובלעדָה against ונדעָה, which was a reader's own self-correction, and against that rival only. It was never argued against ובלבנה, which differs from ובלעדָה in two sorts and which the edition's own positional and lexical evidence supports across four occurrences — the same shape stands twice at recto L19 followed by הראשונה and הב', and at verso L1 followed by ה[ג/ד], giving first, second and third *levanah*. The reader who read the catchword independently reports the same shape at recto L19 and cannot settle whether it is a genuine repetition across the leaf turn or his own misreading of L19 — which is the very line the competing argument rests on. Both passes' catchword-to-first-word agreements here are of the weak kind, one reader reading both loci. The decisive test is to compare the four occurrences as one set, sort by sort.

120. batch_038 / f. 38r, eclipse plate — Category B — source compositor error

The blue on this plate carries information. Three moons wholly inside the shadow cone are 91–93 per cent blue; two cut by the boundary of the cone are half blue, split through their own centres; two outside it are not blue at all. The pigment is the manuscript's own rather than a later marking-up, its hue ratios matching those of the blue on the figure at f. 35r. Any monochrome reduction of this figure deletes the eclipse magnitudes silently, and the codex's figures should not be extracted through a pipeline that assumes diagrams are inherently monochrome.

121. batch_038 / f. 38r, plate label census — *Category B* — *source compositor error*

A cold reader counted fifteen positions carrying ink on this plate, against the ten labels the edition records, and named four that the edition does not carry — כדור, צל, מערב, מזרח, החמה — plus a six-sort word beneath צל that could not be read. The four names are not adopted. מזרח and מערב are a cardinal pair that this codex places counter to the modern convention on one plate and with it on another, so importing them is precisely the harmonisation the edition refuses; כדור החמה differs from the edition's reading in the word, not only in the position; and no sort count is offered for any of the four. What is footnoted is the count. The ten labels in the file are the labels that were read, and were never a tested census of the labels present — the edition made a positive edge-to-edge absence census on this leaf's verso plate and no equivalent count on the recto. The remedy is mechanical: read the bearing panels edge to edge for ink and count the positions before naming any of them.

122. batch_038 / f. 38v, plate — *Category B* — *source compositor error*

The figure on f. 38v carries no labels and no caption. This is a positive finding of absence, made after reading the bearing panels edge to edge, and not an omission in the transcription. Both plates on this leaf are uncaptioned, where the codex's own description of its figures speaks of gilded titles, and the two use different palettes from one another. A comparable positive absence stands at f. 40r, where the figure carries neither labels nor caption although the prose on that side expressly cites it.

123. batch_039 / f. 39r L6–L7 — *Category B* — *source compositor error*

The passage equates ־ — fifty — minutes with about two hours, which does not close on any ordinary reading of the units. The text is rendered as it stands and is not emended. Either a numeral is misread, or the unit word is, or the source's own arithmetic fails here; none of the three is chosen, and the arithmetic is expressly not used to settle any sort. A comparable non-closure stands at f. 22r L5–L7.

124. batch_039 / f. 39v L1 — *Category C* — *author/source anomaly*

Inside a span that the edition prints as unread, a reader recorded four separated sorts — זכיות — and gave them as written, noting without asserting it that they spell the name of Zacut, and that the reading came from the ink rather than from the identification. The edition asserts nothing at this position, so nothing in the

text is contradicted; the observation is recorded because it bears on the question of whether this manuscript names any authority at all, which is answered negatively elsewhere in the apparatus on weaker grounds. The word immediately before it is separately refused: החכם is excluded because the first sort ascends where החכם requires a ה , re-derived at $5.1\times$ against same-line controls, and לחכם was offered and not committed, on the reader's own principle that a completion fitting that well is a reason for suspicion.

125. batch_039 / f. 39v L15 — Category B — source compositor error

The gold rubric opening chapter 18 is set into the body of the text, with the black writing wrapping around it for two lines — a rubric doing what figures do elsewhere in this codex. The layout is recorded because it is a feature of the page and because it explains why the chapter opening stands in the middle of a side rather than at its head. The numeral is written י"ח , the euphemistic *chai* form, and is expressly not normalised: a reader following the sequence would have supplied י , so the form is a positive discriminator rather than a difficulty.

126. batch_039 / f. 39v L17 — Category C — author/source anomaly

This word has been proposed as נוגה , Venus, and is refused. Examined across four loci on the side, the class shows three sorts closing with a descender at three of them, which on the sort count makes it the גו member of the class and not the four-sort נוגה . Only the four-sort instance at L17 stays open, and there the final sort's counter is closed, leaving ה and נ unsettled. Neither reading gives Venus. A settled instance elsewhere in the codex is deliberately not imported to close this one. The identification of the planet was refused separately on the express ground that it is supplied by astronomical expectation rather than read.

127. batch_039 / f. 39v catchword — Category C — author/source anomaly

The catchword at this foot reads $\text{ה. } \llbracket \text{ב/כ} \rrbracket \llbracket \text{ד/ר} \rrbracket$. The middle sort is settled as ה at $7.8\times$ against the final ה of נוגה on the same side, a detached leg being real evidence in a hand whose halo bridges but never separates; sort 1 is narrowed to $\llbracket \text{ד/ר} \rrbracket$ and sort 3 reopened to $\llbracket \text{ב/כ} \rrbracket$. The result yields no obvious Hebrew word, which may mean that one of the three sorts is wrong. The continuity of the leaf turn is nevertheless established independently: a component-wise cross-check against the opening of f. 40r gives three sorts and four components with a correlation peak of 0.826 at the true locus against nulls of 0.550 on the same leaf and 0.624 across leaves. The join is sound; the word is not settled.

128. batch_039 / f. 39v, running header against the body rubric — Category B
— *source compositor error*

The running header on this side reads פ' ט"ז — chapter 17 — while the body of the side opens פרק ח"י, chapter 18, in gold. Both are recorded as written and are not reconciled. The codex is known to carry a one-side lag between its running heads and its rubrics elsewhere, which would account for this, but the locus was deliberately left open rather than resolved by that pattern: an argument from the regularity of the series is a coherence argument, and coherence is what this edition declines to use as grounds for a reading.

129. batch_040 / f. 40, running head — Missing-source lacuna

An area at the left of the running head is rubbed and illegible, and the damage stands in the same place on both sides of the leaf. That coincidence suggests systematic erasure rather than incidental damage. Nothing is guessed at the position and nothing is supplied. This is a codicological observation about the leaf rather than a reading, and it is recorded as a target for a dedicated probe.

130. batch_040 / f. 40r L12 — Category C — author/source anomaly

The clause ולמדתי [ב]טלמי' has the shape of an author-attribution, and one reader expressly refused to assert Ptolemy on the ground that the כ/ב control had not been run at this locus and that the identification is exactly the kind of thing supplied by recognition. The control has since been run on the same leaf, in the same hand and ink, at one scale: בקירוב at L11 and again at L13 shows the ב with a flat base projecting distinctly to the right, a heel, while כ"ח at L10 shows the כ as a smooth curve with no right-projecting foot. The target sort carries the heel, so the first sort is ב and not בטלמיס כ. is the standard medieval Hebrew rendering of Ptolemy, so the ב makes the identification more likely rather than less. It is nonetheless not asserted: the remaining sorts were not individually controlled and the construction was not parsed. This passage must not be quoted as an authorial statement about Ptolemy until they are.

131. batch_040 / f. 40r L18 and f. 40v L5, L17 — Category C — author/source anomaly

Three chapter cross-references on this leaf read פ' [י]ז and פ' [י]ח against the leaf's own running head 18 = פ' ח"י, and they are not reconciled. They are consistent with the rule established across this codex that פ in a running head is פרק and not the letter-value 80 — that is, chapters 17 and 18, on a leaf whose own head is 18, a back-reference together with a self-reference. That consistency is

the name nor the full title of the table is recovered. Nothing is supplied at either position. The honorific ל"ז establishes that a person is named, which makes this one of the few places in the codex where a named authority is demonstrably present and unread; the others are at f. 20r L6, f. 42r L24 and f. 43r L13. The subject of the table is very probably parallax — the standard Hebrew term is חילוף ההבטה — and that reading is itself withheld at eight occurrences on this leaf, on the express ground that the glossary supplying the reading is a reason to flag it rather than to adopt it.

137. batch_042 / f. 42, Jerusalem — *Category B — source compositor error*

Jerusalem is named at nine loci across this opening. No place had previously been established anywhere in the manuscript, so this is the first, and it locates the work's worked example. The latitude given for the city is separately open: = ל"ב 32 was committed at f. 3v with its coincidence with the received figure recorded rather than banked as agreement, and 33 = ל"ג stands beside it as a live alternative, both being values the tradition carries.

138. batch_042 / f. 42, numeral coverage — *Category C — author/source anomaly*

No value on either side of this leaf is committed: fifty-eight numeral slots stand open across the opening. This is a coverage statement about the edition and not a claim about the leaf. It is recorded so that a reader does not take the absence of values here for an absence of values in the manuscript, and so that the leaf is understood as the codex's largest remaining body of unread quantities. A reader who has stated that the recto's poorest stretch records a method failing rather than illegible ink is on record, and expects most of those lines to be readable by a third reader working from the native panels.

139. batch_042 / f. 42, running heads — *Category C — author/source anomaly*

The running heads of this leaf have been read as 18 = פח"י on both sides, and by two other readers as recto 85 = פ"ה and verso 88 = פ"ח. The disagreement is not about a letter but about where the gershayim fall and how many sorts the numeral has. Two rules bear on it and they do not agree here. Across this codex the running heads carry the chapter series, running monotonically from 1 to 18 across ff. 1–43, and פ in that slot is פרק, not eighty — which is confirmed by a rubric in the second witness that spells פרק out in full. But the sort-count rule holds that פ followed by a two-letter numeral is פרק while פ followed by a single letter is a gematria, and פ"ה is פ plus a single letter. One of the two is wrong at this locus, or the reading פ"ה is itself wrong. A mechanical hazard is documented for exactly this form: a short י under the gershayim vanishes below about 4×

magnification, which turns 18 = פח"י into 88 = פ"ח precisely. One measurement cuts toward 18 on the other sort — against the same line's ה of התכונה, which has a detached left leg and a wide gap, the disputed sort's left leg is continuous with the bar in solid ink at the bar's own density, a join, which is ח. Nothing is adopted; the check is to count the ink units after the פ. Note also that this leaf sits where the chapter series stands at 17 or 18, so reading it as chapters 5 and 8 does not resolve either.

140. batch_042 / f. 42, the leaf turn — *Category C — author/source anomaly*

Both passes agree that the recto foot and the verso opening carry the same single sort, and disagree about which sort it is, א or ק — a bare letterform question read twice on each side by each reader. The verso catchword is read כה at 8× against ב[?]. The check that would settle the verso catchword is external and has not been run: it must match the first word of f. 43r, and the file covering that leaf documents its foot in detail without ever stating its opening word.

141. batch_042 / f. 42r L24 — *Category C — author/source anomaly*

The passage reads ז"ל ... חיבר — so-and-so, of blessed memory, composed — with the name unrecovered. The three elements stand in the same order as at f. 41v L3, one leaf earlier, which suggests a formula the author uses for citing a predecessor's work. Nothing is supplied. Given how few named authorities this manuscript has been shown to carry, these two loci and the honorific chain at f. 43r L13 are the places where the work's own citations of others are most likely to be recovered, and they should be read before any statement is made about whom the author names.

142. batch_042 / f. 42r, marginal gloss — *Category B — source compositor error*

A gloss in a thinner, greyer hand stands beside L17–L28, eleven lines long, and is untranscribed. The two passes agree on the eleven lines and differ only on whether they form a single block or two, of two lines and nine. That is a question about a block boundary, not about presence: both passes agree the gloss is outstanding rather than absent. A four-part show-through test was applied and the gloss is on this side. One caution about the substrate at this leaf: a facing leaf sits inside the same raster past a pale page-edge band near the outer margin, so any crop box reaching beyond that band picks up foreign text.

143. batch_042 / f. 42v L22 — *Category C — author/source anomaly*

This row runs as four values with a unit after each — [N1] [U] טד [N2] [U] ומן [N3] [U] טד [N4] [U] — followed by prose, and all four values are withheld. The

recurring token is a closed loop with a long arm sweeping right and one superscript mark; it is read as υ and is undecided between the numeral 9 and an abbreviated unit-noun. The argument for the second, offered as an argument and not as a reading, is that the token repeats identically after all four values, which is what a unit does and a numeral does not. Segmentation is settled — numerals on this codex take gershayim and this token has a single gersh, so it forms its own group — but its identity is not, and υ itself is unconfirmed. The whole meaning of the row turns on this one sort. Two further refusals on this leaf belong beside it: 45 = ה"מ was refused because it would make a third line agree with two others, and $\llbracket \gamma/\eta \rrbracket$ ב" was refused on the express ground that 102 is the only number that works.

144. batch_042 / f. 42v, gutter margin — *Category B — source compositor error*

Two letter-like forms in grey-brown ink stand in the gutter margin of this side. They are either a two-sort marginal note that the codex's gloss census does not record, or show-through from the other side of the leaf. Neither is established, and no reading is offered. One caution about the substrate applies to any attempt to settle it: a facing leaf sits inside this leaf's image past a pale page-edge band near the outer margin, so a crop reaching beyond that band picks up foreign text.

145. batch_043 / f. 43, running header — *Category B — source compositor error*

The running header of f. 43r reads ס' התכונה פח"י — the *Sefer ha-Tekhunah*, chapter 18 — while that of f. 43v reads $\llbracket ? \rrbracket$ הקדמות, with ס' סו, התכונה סו and no chapter numeral. The change falls exactly where the red rubricated colophon closes the First Gate and a second work opens, and it is one of the clearest structural confirmations that ff. 43v–44v do not belong to the *Sefer ha-Tekhunah* proper. The verso header's first word is nonetheless withheld rather than committed: הקדמות is also exactly what the work's own table of contents predicts for this section, and a reading supplied by an external agreement is flagged, not adopted.

146. batch_043 / f. 43r L11 — *Category B — source compositor error*

At the opening of the second work the author's name is written with four sorts — $\llbracket \lambda/\upsilon \rrbracket \cdot \cdot \cdot \cdot$ — with no λ standing between the third sort and the γ , read at 6.2×. The expected spelling is ויטא, and the five-sort reading that had also been recorded in this file is superseded. The direction of the result is what makes it usable: ויטא is what expectation would supply and the shorter form is not, so the reading runs against expectation, which is the safe direction. Cf. the note at f. 1v

L8, where the same name in the preface stands as an open class because the sorts there cannot be closed.

147. batch_043 / f. 43r L13 — Category C — author/source anomaly

An honorific chain stands here — *and gaon, lamp of Israel* — around a name, followed by a seven-sort gentilic and the honorific זלה"ה. The name itself is not recovered and nothing is supplied. This is the third place in the codex where a named authority is demonstrably present and unread, after f. 41v L3 and f. 42r L24, and it stands on the leaf that opens the second work, in a passage whose register is devotional and biographical rather than technical.

148. batch_043 / f. 43r L14 — Category C — author/source anomaly

The phrase מעץ החיים is legible, and its status is not decided. It may be a common noun phrase — *from the tree of life* — or the title of a book. Nothing on the leaf settles it: there is no ספר before it, no gold, no rubric, and no other feature the codex uses to mark a title. The phrase is rendered without being italicised or capitalised as a title, and a reader should not take this passage as a citation of a work without further evidence.

149. batch_043 / f. 43r L9 — Category B — source compositor error

f. 43r carries a red rubricated colophon reading ע"כ שער הראשון — thus far, the First Gate — and below it a new work opens with the leaf's only gilt אמר, titled הקד[ד/ר]מות מבוא שערים, with that title repeated in the verso running header. ff. 43v–44v belong to that second work. The codex therefore contains only the first of the work's gates, and the edition should not present itself as the whole. The same closing formula is attested twice: it stands again at the end of f. 44r, where an earlier reader had read it while flagging his reading as a coherence argument rather than a measurement, and it was found here independently by a reader who had not seen that probe. □ **A reader who turns to the printed witness for the missing gates must not attribute everything there to Vital.** The print (Jerusalem 1866 → 1967 reset → Brooklyn 1997) carries the **same four-part prospectus and stops at the same place** — both witnesses deliver Gate One only, and say so — but it also carries matter absent from this codex: a publisher's introduction, an approbation for the first printing, and an appended treatise **מאמר מבוא השמש** arguing **against the Copernican system** (pp. 116–137). **That treatise is not Vital's.** It cites *Ya'aros Devash* (R. Yonasan Eybeschutz, d. 1764), so it **post-dates Vital by more than a century** and must never be attributed to him.

150. batch_043 / f. 43r catchword — Category C — author/source anomaly

The catchword at this foot is read דולתיו[[ג/נ]] by one pass and דולתו[[ג/ע/נ]] by the other — a י present or absent, and nothing else at issue. It is a bare sort count, and it falls in the swallowed-yod class documented on this hand, in which a short י under or beside a neighbouring sort disappears below about 4× magnification. The two passes independently agree that the recto catchword is the verso's first word, so the leaf turn is sound; the word is not settled. Count before naming.

151. batch_043 / f. 43v — Category B — source compositor error

The word ונפלאותיו occurs twice on this side, on two different lines at two separately recorded positions. This is a genuine repetition in the scribe's own text and not an artefact of overlapping image tiles. Recorded so that a duplicate screen run over this side is not mistaken for evidence of a transcription fault.

152. batch_043 / f. 43v L17 and L20 — Category C — author/source anomaly

At f. 43v L17 the group הכ[[ת/כ]]בים turns on one sort: read one way it is *the stars*, read the other *the writings*. At L20 בגלג[[ו/ל]]ים turns on a comparable alternation. The consequence is not lexical — it decides whether this passage belongs to the astronomy or to a devotional and biographical register, which is the register the leaf's opening plainly adopts. Both are left open. Two further phrases on the same side, מעשה בראשית and מעשה מרכבה at L7 and L8, are flagged and not committed, on the principle that a term naming exactly what a passage appears to be about is the most dangerous reading on the leaf.

153. batch_043 / f. 43v, catchword — Category C — author/source anomaly

A claim that this side carries no catchword, made after examining the full foot, is refused. An absence would make this leaf anomalous in a codex demonstrated to use page-catchwords, and the positive evidence is specific: two sorts stand alone below L28 and above the tail edge, at the gutter-side end where the side's text flow ends, the first a rounded bowl in the כ/ב pair and the second a final ׀ committed, with ך positively excluded. A separate note identifies the pale form at the other end of the foot as show-through of the recto's catchword, on colour and edge definition. That is the shape of this negative: a reader examining only the other half of the foot band sees the ghost, rightly declines to call it a catchword, and concludes the side has none.

154. batch_044 / f. 44r L27 — Category C — author/source anomaly

There is no date, no name, no place and no scribal subscription anywhere in this codex, and on the final leaf that absence is measured rather than assumed. The rightmost group of f. 44r L27 has the shape of a year — two sorts with medial

gershayim — and cannot be one. Every year in the catalogued window of 1601–1633 is 5361–5393 of the Jewish era, that is שש"א through שצ"ג: three sorts, each opening with ש. This group shows two ink columns and no ש.

155. batch_044 / f. 44r, closing formulae — *Category C — author/source anomaly*

The conventional Hebrew closing formulae — תושלם, תושלב"ע and their kin — are refused at the end of the text. The ground is the position itself: a formula that a colophon slot would supply is the reading expectation produces, and this codex has been shown to carry no date, no name, no place and no scribal subscription anywhere. The closing formula that is attested is ע"כ, standing at the end of f. 44r and again at f. 43r L9 where it closes the First Gate, found by two readers independently. Nothing beyond it is committed.

156. batch_044 / f. 44r, final word — *Category C — author/source anomaly*

The final word of the codex is not read. It is six or seven sorts; the third element is 7 on a baseline break of 36 px, the final letter falls in the class [ך | ף ץ ף], and elements 1 and 4 fall in the [ך/ד/ר/כ] class, which is one of this hand's two irreducible pairs. The second witness cannot help here: this leaf belongs to the codex's second work, and NLI Ms. Heb. 28°9573 runs from the end of the First Gate straight into its tables.

157. batch_044 / f. 44v — *Category B — source compositor error*

f. 44v carries no writing. A note inherited into this work's own scaffold described the side as a multi-column table; that is refuted — what registers as a grid is show-through from the other side of the leaf. The codex therefore ends with the text on f. 44r and a blank final side. Recorded because an inherited description of a source is exactly the kind of claim that survives unexamined into an edition, and because a reader should not expect tabular matter here.

158. f. 1v — the author's four-part prospectus — *Category C — author/source anomaly*

The introduction sets out the author's own division of the work into four parts, and it is **his announced plan in both traditions, not an editor's bundling of addenda**. □ **The two traditions name the unit differently**. This codex and NLI 9573 both write the section-noun as a four-sort drawn display word read **הדרש**; the print writes (הראש הב', הראש הג', הראש הד') **ראש**. Same list, same order, same content — **a different noun for the unit**. □ **The print's reading is NOT imported here**. Two independent manuscripts agree, and the print is the latest and most reset witness; a shared reading in two MSS is far likelier than a shared

error. The MS tradition reads דרש. □ A re-read of the display word is nevertheless owed, and it is a request rather than a correction. Both candidates are four sorts — הִיר־אִישׁ against הִד־רִישׁ — and the first disputed sort falls in this codex's documented [ד/ר] class, the most confusable pair in the hand, which ד/ר separates only by a heel needing about 9×. **The decisive test is sort 3, ר against א**, not sort 2. Cheap insurance on a word that names the work's own structure — not grounds to change it.